Issue 108
PS
1961 Series
THE PREVENTIVE MAINTENANCE MONTHLY
OKAY CHARLIE, I TOL' HER TO KEEP THE MOTOR RUNNIN'... BUT SO IS THE METER... AIN'T YOU NEVER DONE NO PM ON THAT THING?
TM
TM 11-7
Will Eisner

Maintenance Is Training...

Sometimes some people forget. They don't really mean to, but they do.

They forget that the training you get has one aim in mind—getting you ready for combat.

That's why these same people also sometimes forget that maintenance training is for combat.

Like way back when you had basic. That M1 rifle you had was the best maintained rifle in the Army. You made sure. The reason? That rifle, or one like it, might some day be the thing that would help you do the kind of job you were being trained to do—in combat.

That's why the maintenance you do every day on whatever equipment you're working with is so important. You learn to do today what will become second nature to you should the day of combat come.

That's why your sergeant gives you and your buddies real thorough training on how to operate your equipment right, how to keep it lubed, adjusted, clean, and "working on all eight." And he gives you plenty of time to do the maintenance work.

That's why your outfit's CO sets plenty of time into your training schedule for maintenance training and for the maintenance job itself. He knows how important it is.

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That's why the CO or CG farther up the line makes sure his staff advisers (like his operations and training officers) keep maintenance in mind when they set up schedules and when they plan operations. That's why his personnel officer plans months ahead to get school-trained men with know-how in operation and maintenance of equipment.

Your sergeant and your CO know that your unit—in combat—will be only as good as your equipment. And your equipment will be only as good as its maintenance.

Make sure yours is ready to—Deliver Firepower . . . Communicate . . . and Move.

FOR COMBAT

P.S THE PREVENTIVE MAINTENANCE MONTHLY

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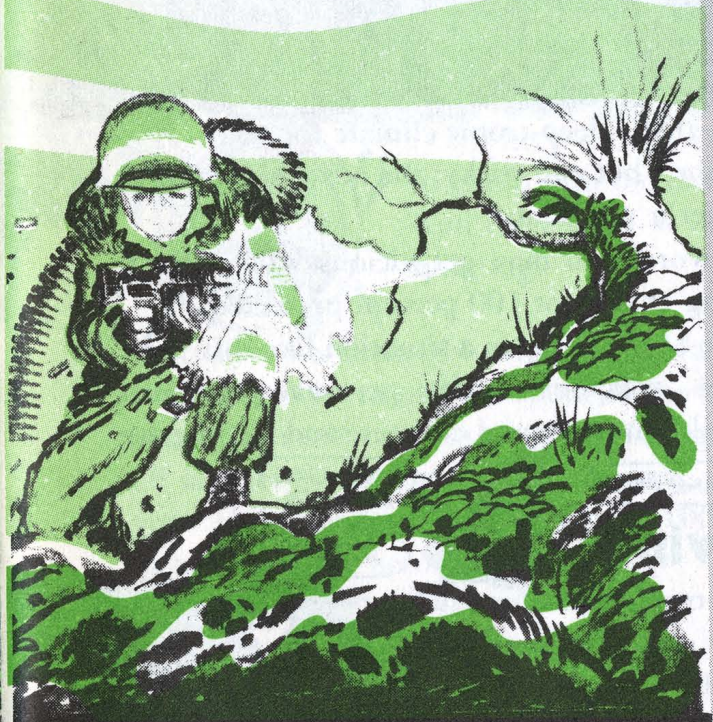

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MAINTENANCE, WHERE IT'S...

WARM WET

Dame Nature in a permanent sweat—that's deep-tropic climate for you.

A real fickle dame, too. One minute she's hot and sticky; the next she's raining cats and dogs; and the next she's foggier'n pea soup.

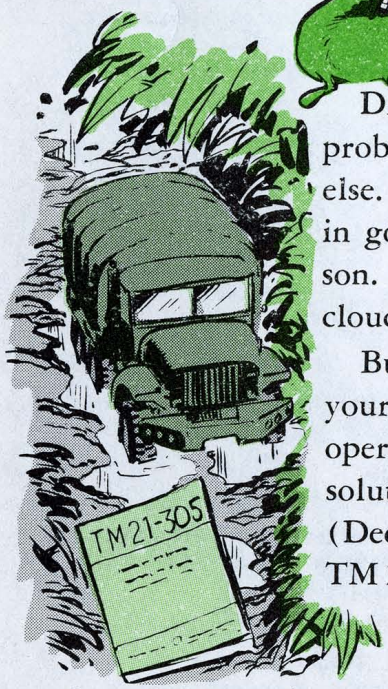
To top it off, when the rain's at its worst you may get vicious winds that'll really blast you and rip away everything that's not 100 percent protected.

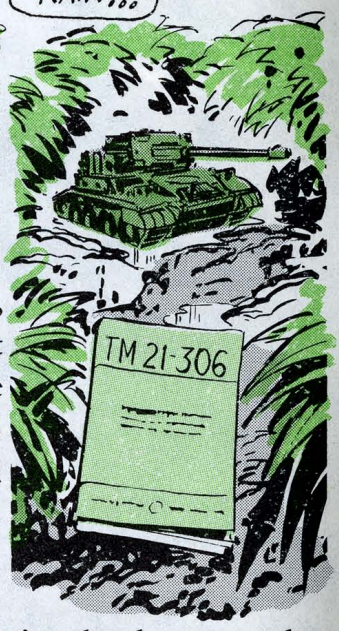
It stands to reason that PM is the life of the party in a situation like this. And that goes for ALL equipment—vehicles, weapons, radios, personal gear—just **everything.** Not easy . . . when you think how heat and moisture and fungi gang up on equipment.

Driving

Driving in deep-tropic areas presents problems you may not meet anywhere else. What roads there are may not be in good condition even in the dry season. And in the wet season, or after a cloudburst—brother!

But no matter what you run into, your driver's manuals and equipment operator's TM's'll probably have the solution for you. Eyeball TM 21-305 (Dec 56) for wheeled vehicles . . . and TM 21-306 (Aug 56) for the tracks. . . .





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One of the toughest problems here is overheating. Any engine that has to work in low gear in soft ground or up steep slopes in hot weather runs the danger of overheating.

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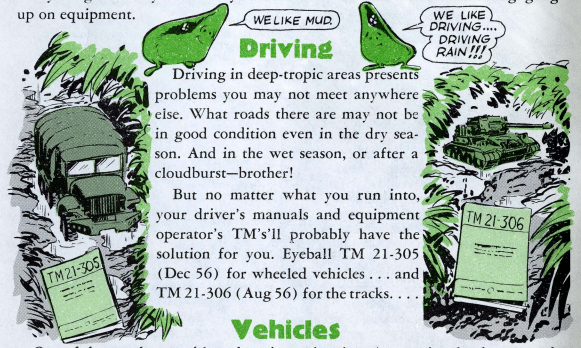

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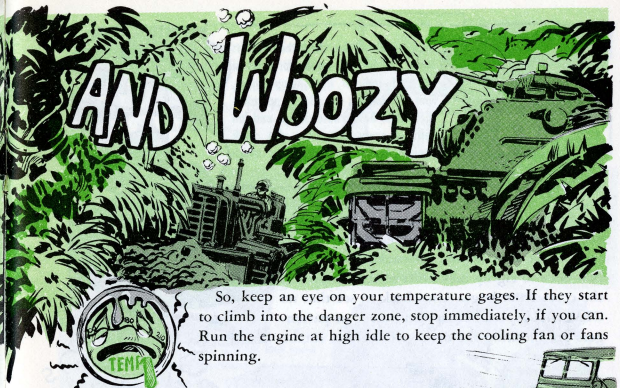


So, keep an eye on your temperature gages. If they start to climb into the danger zone, stop immediately, if you can. Run the engine at high idle to keep the cooling fan or fans spinning.

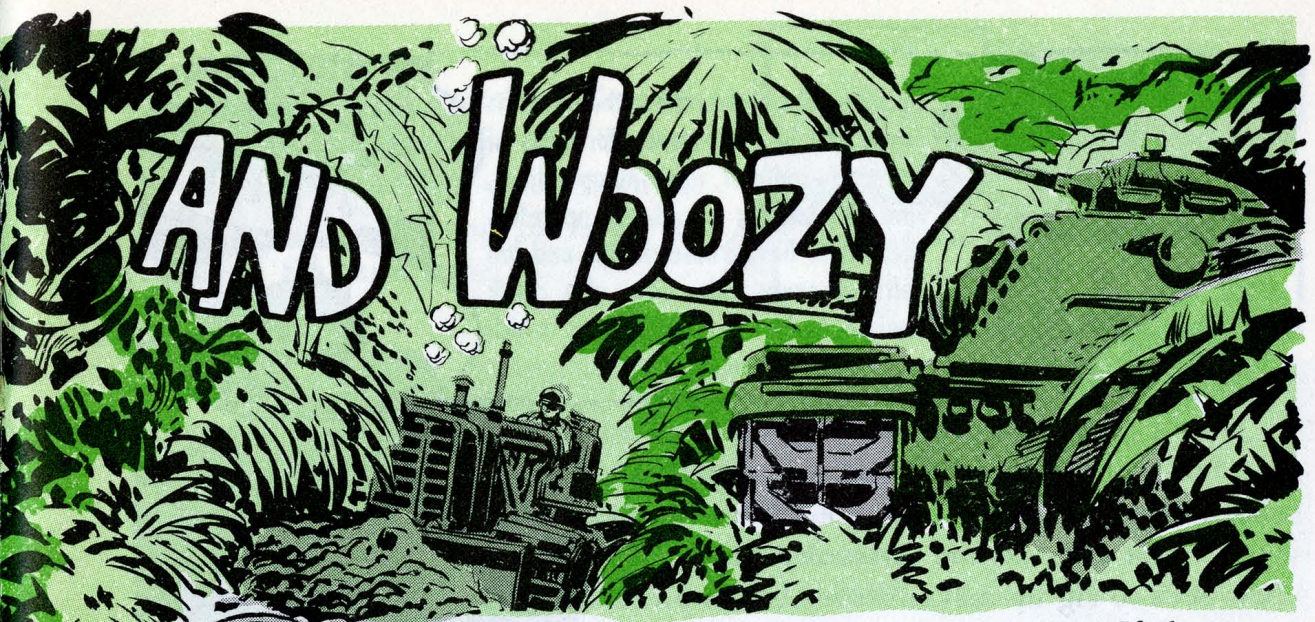
If there's a breeze blowing, try to face your wheeled vehicle into it—to add the speed of the breeze to the fan blast. After several minutes of fast idling, shut the engine off and let it cool naturally. Of course, you'd cool down your tank engine by running it at 1000-RPM for five minutes at least before stopping.

But whatever you do, **don't** try to cool off your hot engine by giving it a drink of cold water. You'll bust the block sure.

To do a good job your cooling system must be in top condition. Check the water level often—and make sure any water you put in there is clean. In some areas where fungi scums up the works, flush out the radiator and put in a fresh supply if what's in there looks gooky.

But in other areas—especially volcanic areas—the mineral content of the water will be your biggest hex. These minerals separate from the water and coat the innards of the radiator core. In places like this it's better not to change the water if you can help it. But still keep the radiator full.

PS MORE



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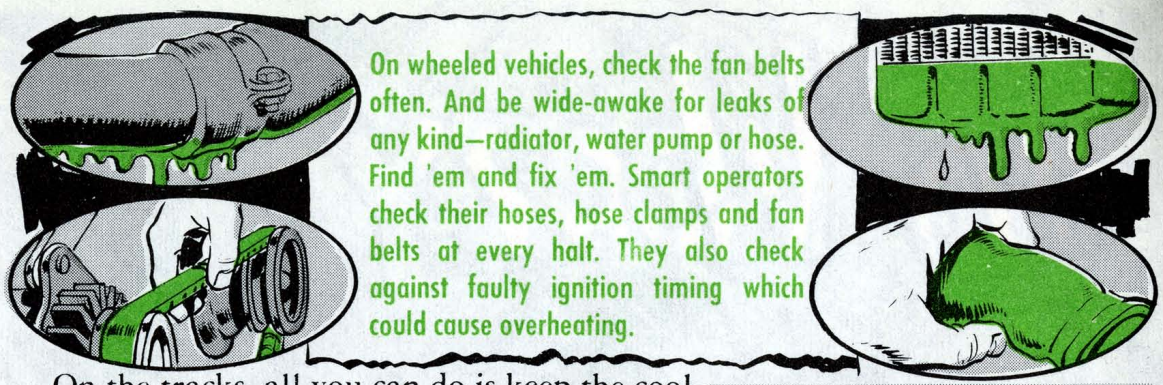
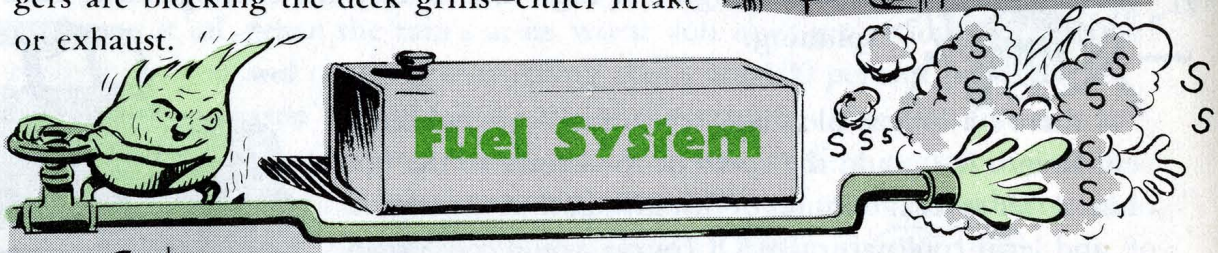
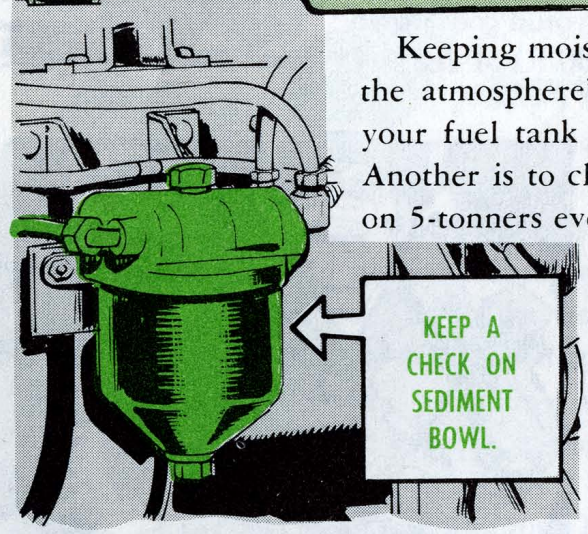


On wheeled vehicles, check the fan belts often. And be wide-awake for leaks of any kind—radiator, water pump or hose. Find 'em and fix 'em. Smart operators check their hoses, hose clamps and fan belts at every halt. They also check against faulty ignition timing which could cause overheating.

On the tracks, all you can do is keep the cooling fans, oil filter and air cleaner in shape and clean. Watch especially for insects and leaves that might clog up the oil cooler cores. Your best bet's to rig up makeshift screens to protect the cores from bugs. Also check to see that no OEM, BIIL, special equipment, cargo or passengers are blocking the deck grills—either intake or exhaust.

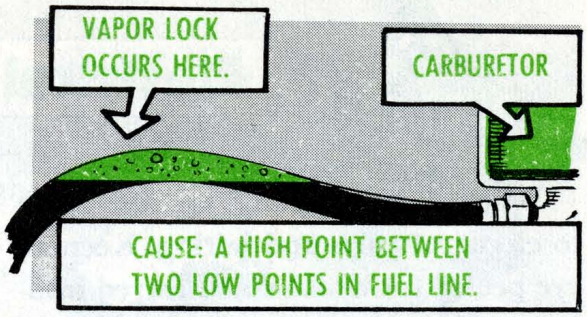


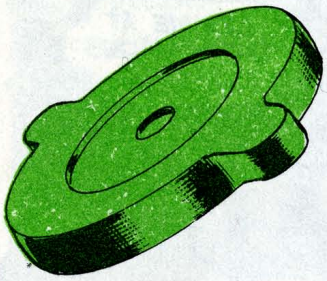
Keeping moisture out of fuel is a man-sized job when the atmosphere's loaded. One good defense is to keep your fuel tank filled (but not above the FILL mark). Another is to clean the sediment bowl often—and those on 5-tonners every day.



One of your biggest headaches under these conditions, however, could be fuel pump failure due to vapor lock. What happens is that the fuel gets so hot it changes from liquid to vapor (actually boils) and the pump can't move it. (This won't happen on vehicles with pressurized fuel systems.)

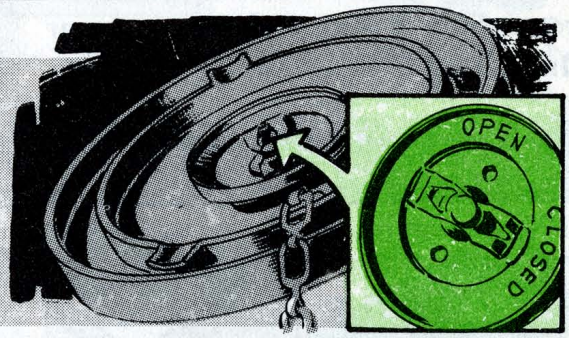
On commercial type vehicles this could also happen because of a "hump" in the fuel line leading either from the tank to the fuel pump or from the pump to the carburetor.





There're a couple ways you can head off vapor lock. One is by doublechecking these fuel lines and straightening 'em out to get rid of the "humps." Another is by temporarily pressurizing the fuel system yourself by plugging up the vent hole in the fuel tank cover before going on a long haul. Be real careful, though. Loosen the cap ever so slowly to let the vapor escape or you'll be flooded with gas. And be sure to unplug it BEFORE YOU PULL OUT.

On a tactical vehicle that has a vapor lock valve on its gas cap make sure it's closed—in the fording and vapor lock position. On other vehicles that don't have these valves, just keep the cap screwed down tight.



Here's a handy way to handle vapor lock after it hits you: Wrap the pump and nearby lines in paper, cloth or burlap that's been soaked in water. In a real pinch, you could also wrap up cool wet sand or dirt and use it the same way. But be sure it's wrapped so's the stuff don't get loose in your engine. The cool water or dirt will help bring the vapor back to a liquid.

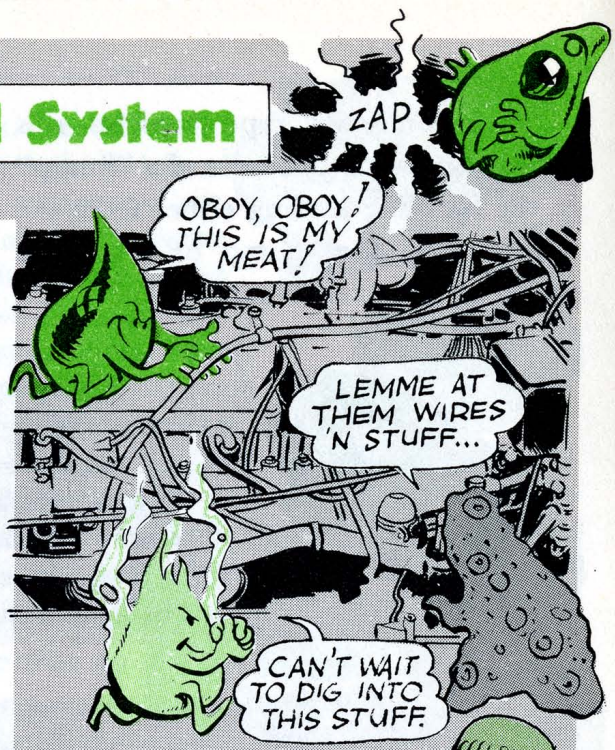
The right storage of gasoline is real important in hot and humid areas. Make sure fuels and lubes are protected from the weather. Same with Jerry cans and drums and dispensing equipment. TM 10-1101 (Sep 55) on petroleum handling operations, with its Change 1 (22 Jan 58), is full of dope on this.

(PS) MORE

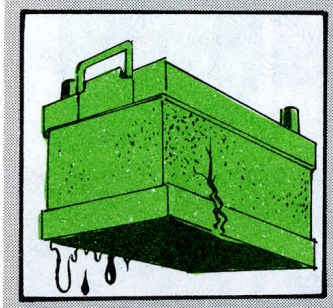
Electrical System

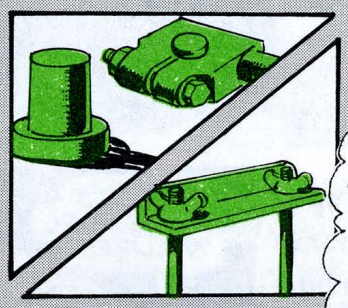
Water, heat and fungi are sure death to electrical parts and wiring. Keep an eye peeled for cracked and frayed insulation. Keep the wiring dry and waterproof by using electrical compound to seal up those cracks. Be careful you don't over-do it, though.

Check electrical connections often and head off any corrosion that starts. If you see a connection that's loose or bare, tighten it snug and give it a coat of Insulating Compound, Electrical.



One of your biggest problems, though, will be the vehicle's battery.





Check it daily for leaks and cracks. And keep it **clean** . . . especially the posts, brackets and clamps.

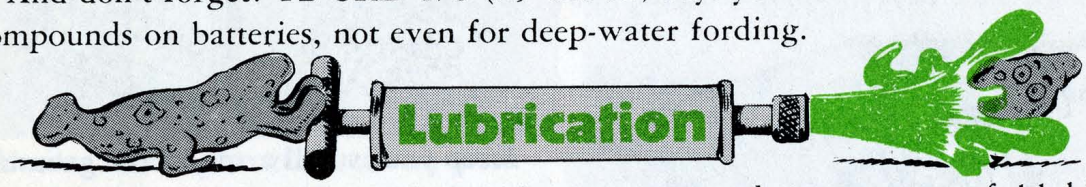
Paras 20 and 29 in TM 9-6140-200-15 (July 58) have the full poop on battery washing. Para 37 of the same TM will clue you on the right battery care in hot and woozy areas. Keep a sharp eye on the electrolyte readings. In the subtropics your battery'll need less specific gravity than elsewhere . . . say a reading of 1.200 to 1.225 at full charge.

But you want to be real careful about the water you use. If you can't get your paws on distilled water, give first choice to rain water that hasn't touched metal. If you scoop it out of a spring or brook you might have trouble with the mineral content. But keep in mind that even the wrong water's better than not enough water.

Remember, before you put the battery back, scrape and repaint the boxes and carriers. Make sure you seat the battery right. Make it snug . . . not too loose and not too tight. Coat the battery terminals with a thin coat of grease.

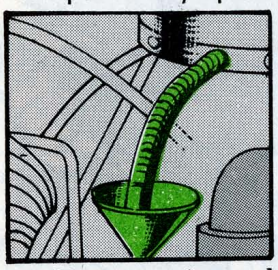
Never tape around battery boxes and box covers. In most humid areas a box that has vent holes and is unsealed will stay drier than one that's sealed up.

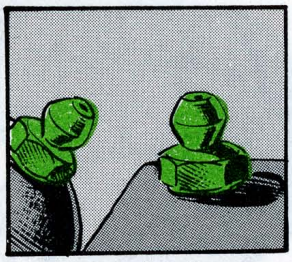
And don't forget: TB ORD 476 (29 Oct 52) says you never use water-sealing compounds on batteries, not even for deep-water fording.

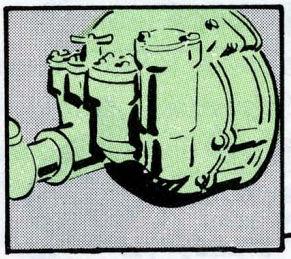


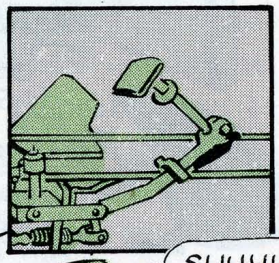
Natch, it stands to reason your vehicle's gonna need your most careful lubing under humid conditions. Follow your rig's LO to a "T," and do all the extras . . . leave no doubt.

Your first objective is to keep rust-forming moisture out. Be sure to use the right grade of lube at all the lube points. Pay special attention to the crankcase, lube fittings, gear boxes and hydraulic systems.









Clean real good around lube fittings before giving 'em the grease gun. And use only a clean rag—to keep from setting up the gook so your gun'll force it right into the fitting.

Another thing, high humidity causes rusting of all exposed metal surfaces. So coat all the machined parts and unprotected surfaces with oil or grease. Miss out on this and you'll be hurtin' for certain.

The best way to protect your equipment when it's not being used is to keep it covered with a tarp or home-made shelter, or park it under a tree. At least keep the engine, gun mounting and the like covered.

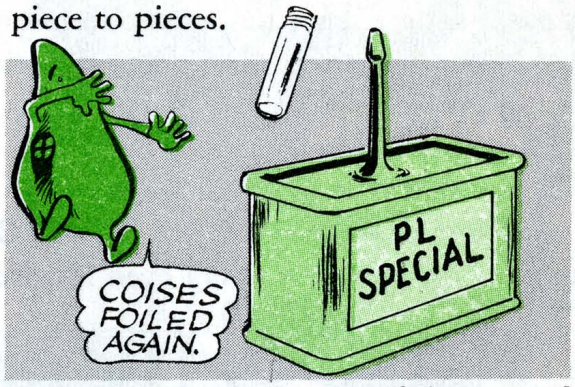
P.S MORE

Here's a tip for guys using trailers. On the M100 trailer, which is amphibious, keep the drain plug out at all times —except when fording. But on all other trailers—to keep water from collecting —park 'em with the draw-bar end raised so's the water'll run out of the tailgate.

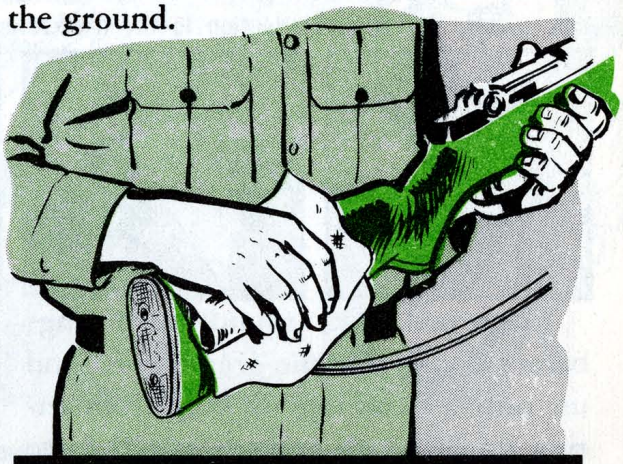
Every man should carry a small container of lube oil with him for his individual small arm. When the weather's hot and humid, preservative oil is best. Use PL-Special general purpose corrosion and oxidation resistant lubricating oil . . . FSN 9150-273-2389 . . . QM . . . 4 oz can.

When your weapon'll be exposed to plenty of dunking in salt or fresh water, spread a light coat of Grease, Rifle, mineral oil and calcium soap, 190-degree melting point. If your small grease container is empty, get a new supply from your armorer. He should have it in a 1-lb can under FSN 9150-754-0063.

In sandy, dusty areas you use as little lube as possible. Oil will catch and hold dust and sand which'll chew your piece to pieces.



Keep your small arms off the ground as much as possible to protect 'em from the damp, crawling dirt. It's a good idea to make platforms to store them on so they'll be at least three inches off the ground.

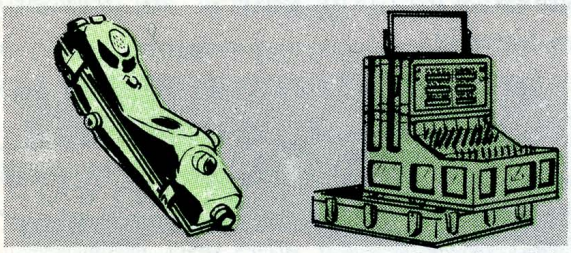


You've gotta give the wooden parts of your small arms special care. A light coat of linseed oil (FSN 8010-281-2736) every so often will keep moisture out. Rub the oil in good with the heel of your hand. Then wipe and polish the wood with a clean dry rag. Be careful, though, not to get linseed oil into the mechanism—it'll gum up the works when it dries. Play it safe—remove the stock and hand guard before you apply the oil.

Give special attention to the accessories, spare parts and magazines to keep 'em from rusting.

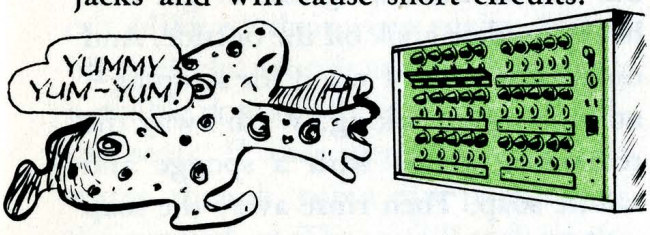
Communications Equipment

High heat and humidity are extra tough on all kinds of commo equipment—radios, telephones—everything.



You're in a fight to the finish with mildew all the time. Its special targets are the canvas carrying straps, wiring and cables, rubber gaskets and shock knobs—and especially batteries.

Fungi can reduce insulation resistance in a couple days. It'll form on the edges of insulators and in the keys and jacks and will cause short circuits.



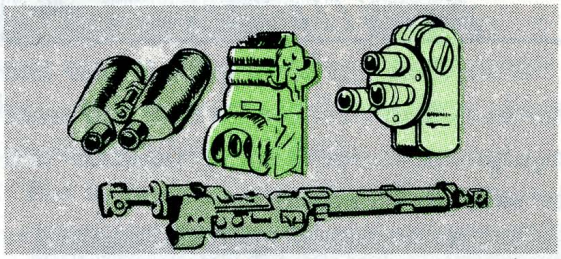
Your best weapon against it is keeping your stuff clean and dry. Get the habit of wiping cables and exposed parts with a clean rag—but gently—and make sure your equipment's always protected from the weather.

Dry cell batteries are a special problem. They're under attack when they're being used and when they're stored. They've gotta be stored in a dry, cool, clean place.

A BASIC RULE IS NEVER LEAVE ANY COMMUNICATIONS EQUIPMENT ON THE GROUND LONGER THAN ABSOLUTELY NECESSARY.

Keep a weather eye peeled on the metal parts of your equipment, too. They're supposed to be covered with a moisture- and fungi-resistant compound. If you see any bare spots, notify your support people pronto.

Optical Equipment



Hot and humid weather can cloud up the lenses of your optical equipment (sights, compasses, binoculars, etc.) and play hob with their metal parts. Your biggest problem is sweat. Sweat contains acid . . . acid means trouble.

It's smart to button up your equipment in bad weather to protect fire control instruments. Inspect all weathertight rubber seals often to see they're in shape to keep instruments dry. And keep a sharp eye out for condensation inside optical instruments.

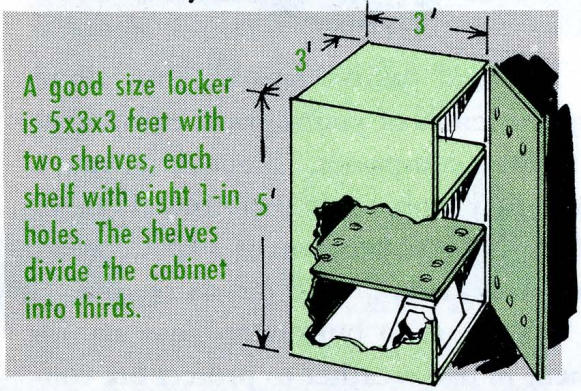
Never use liquid or paste polishes on the lenses and be mighty careful wiping off dust or grit so's you don't scratch the lenses or damage the coating.

Always wipe the equipment dry after using it and put a thin film of oil on unpainted metal surfaces. Keep a sharp eye on screws and pins. They're first in line when rust attacks. Oil 'em lightly once a week to play it safe.

PS MORE

Their rubber parts need special care, too. For instance, don't let grease and oil accumulate on rubber eyeshields and don't use volatile mineral spirits or dry cleaning solvent to remove gook from rubber. Instead, clean 'em with mild, soapy water. Rinse 'em, then dry and dust lightly with talc.

Your best bet to help beat rust and fungi is a dry locker. When you store equipment in one of these you know it'll be safe till you need it.



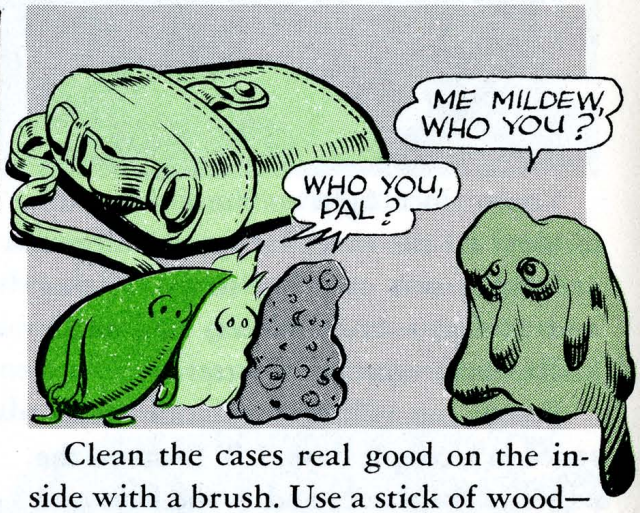
The deal that turns the cabinet into a dry locker is a light bulb at the bottom of the cabinet. Ordinarily a 25-watt bulb will do, but in the deep tropics the 40-watt size is better. Put a shield, like aluminum foil, around the bulb as protection against fire.

Air comes up through the holes in the bottom of the cabinet and is warmed as it passes the bulb. Then, as it goes out the top holes it takes the excess humidity with it.

Don't let the cabinet get too warm, though, 'cause it might damage the instruments.

Leather Goods

This dry locker'll make it easier to take care of the leather cases for your instruments, too, if you make it big enough. You have to handle all leather goods with "kid gloves" to prevent m:ldew.



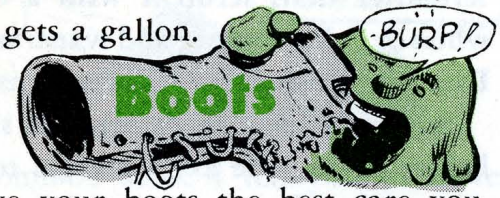
Clean the cases real good on the inside with a brush. Use a stick of wood—but not a knife or glass—to get real heavy mud or gook off the outside. And only use a stick of wood for scraping—no jabbing or poking. Wash away the remaining grime with a sponge and saddle soap. Then rinse away the soap with warm water and follow with another rinsing. Now wipe it with a clean cloth.

Don't dry leather goods in the direct sun. If you use the dry locker, though, make sure you don't get it too hot. Use the right size bulb. After the leather's dried out, replace the oil that's been

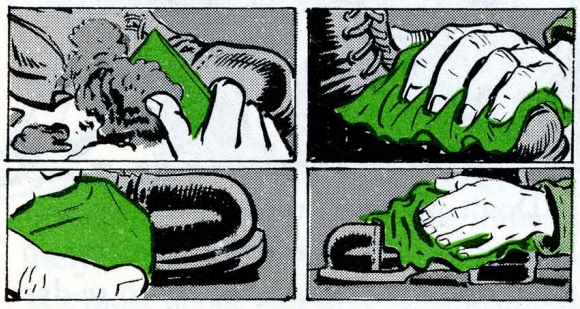
washed away by rubbing it with a cloth moistened with neat's-foot oil. Then wipe away the excess oil and rub the leather to a shine.

Of course, for leather goods that won't come in contact with your skin, you can use a dressing like: Leather dressing, mildew-preventive, Mil Spec O-L-164a. FSN 8030-174-3201 (QM) will fetch a pint can. But be careful . . . don't let it bite you.

The Engineers also have a mildew-resistant compound, textile, (Mil-C-13295, Type I) that's good to protect cotton duck and webbing from water, weather and mildew. FSN 8030-290-4382 gets a gallon.



Give your boots the best care you can. Mildew's their worst enemy. Scrape off mud, clean inside and out, and apply a double dose of elbow grease and saddle soap. If they get soaked in salt water, though, rub a raw potato over the wet surface. The spud'll soak up the salt. Then wash lightly and oil.

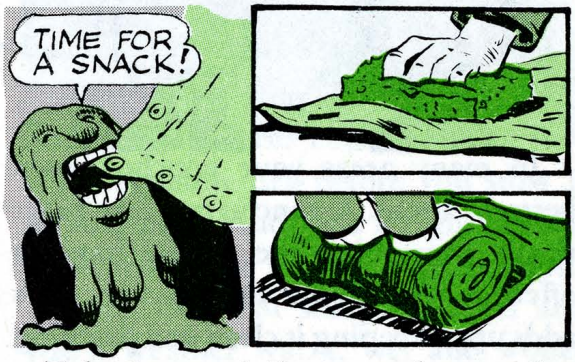


Be careful how you dry 'em. The sun's too strong, and so are heaters and stoves. Hang 'em up in the shade. In the deep tropics you gotta be mighty careful about preserving the insides of footgear. Stuff paper in 'em to absorb moisture (after brushing the inside out good, of course).

You also want to keep an eagle eye open for insects, spiders and other creepy small stuff that may slip into your shoes. Scorpions are famous for hiding out in shoes; their stings are no joke.

Mildew (fungi) is the worst enemy of canvas—and the only way you can beat it is by trying your level best to keep canvas clean and dry. Pretty tough deal, this, in warm and wet areas, but a few good habits'll help.

For instance, always flip off the moisture before you roll a tent or tarp. Of course, if you have time, dry it out real good first. Always carry it—never drag it. Watch out for tree branches or bushes that'll rub away the waterproofing. Concentrate on keeping the edges and seams and places around grommets free of mud and wetness. That's where Ol' Moldy always goes to work fastest.



Take it especially easy when you're pitching and striking your tent. FM 20-15 (Jan 56), on tents and tent pitching, is the bible on this.

Try never to dry your tent or tarp in direct sunlight. Rather, hang it in

PS MORE

the shade a few feet off the ground. Check it often for rips, tears, loose or missing hardware. And fix it pronto, before little troubles become big ones.

Take the same good care of your lines. It's important to remember that you loosen the lines when it's raining and tighten 'em when it's dry. And when the high winds come howling, tighten all lines immediately. Close the door entrances and flaps and close all corners.

Poncho

In many areas your poncho's even better'n a tent. A poncho can take practically everything the tropics have to offer—if you give it decent care. This adds up to keeping it clean and patching up small tears as soon as they appear.

Wipe it with a clean cloth and wash it with mild soap and water, like it says in FM 21-15 (May 56).

Remember—Inspect, Clean, Patch—the Big Three of poncho care.

Web Equipment

Web equipment is just as much of a sucker for mildew as canvas. So watch it. The cleaner and drier you keep it the longer it'll last.

Clean it by dipping it up and down in a pail of warm soapy water. (Be sure you don't use chlorine, yellow issue soap or cleaning fluids.) After washing, rinse out the soap carefully. If any dirt's left after that, scrub it with a clean white or color-fast rag and warm water. Don't ever use a stiff GI-type brush.

Stretch it back to its original shape before drying. Be extra careful to get the seams and edges clean and dry.

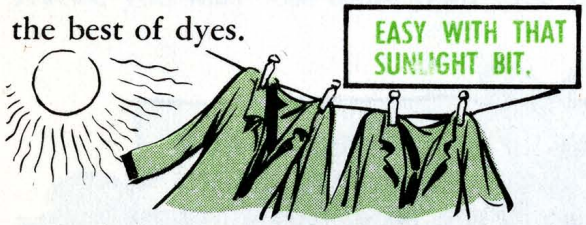
Don't put it in the sun to dry, but hang it in the shade where breezes can do a job on it. Don't ever try to re-dye webbing, either.

Your load-carrying harness is made of webbing, while the pack's made of canvas. Your best guide for taking care of both of 'em is FM 21-15, with its changes.

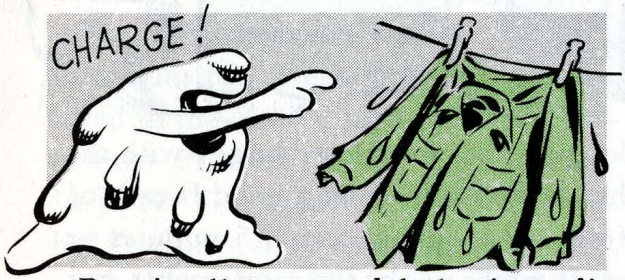
Clothing

Clothing needs common-sense care under hot-wet conditions. Here're a few good rules to follow:

Wash 'em frequently in warm soapy water. Dry 'em in the sunlight, if you can, but don't overdo it. A certain amount of sunlight is good for preventing mildew, but too much of that hot sun can ruin fabric and bleach even the best of dyes.



Common sense'll tell you to leave your washed duds in the sun just long enough to dry. After that hang 'em in the shade for a while. Look out for mildew, always. Any moisture—and especially sweat—will bring on a big scale attack.



Repair all tears and holes immediately, if you can. Plenty of clean socks is a must. Your feet may be your major means of transportation.

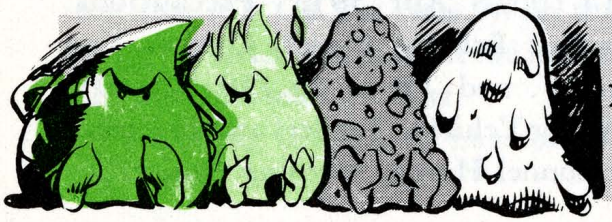
Mess Equipment

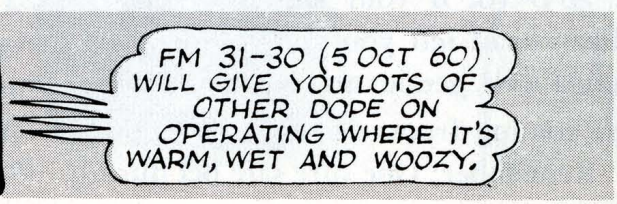
Cleanliness is the No. 1 rule here. Bits of food left in a pan or on a utensil can sic ol' Ptomaine Joe on you quick as a wink. Dip your mess gear in hot soapy water and use a brush, if you can, to get rid of food or grease. But use steel wool or clean sand very gently—if at all. You don't want to disturb the coating that protects the metal from rust.

Rinse your gear in clean boiling water and let it drain and dry. (Sometimes it might be handier to air-dry 'em by waving 'em back and forth.)

Never give your gear a final wipe with a damp cloth. You want to be sure it's completely dry before you stow it in your pack. And pack it right. This'll prevent damage that'll encourage rust.

Keep your PM sharp and cool and you'll weather warm, wet and woozy conditions with plenty to spare.





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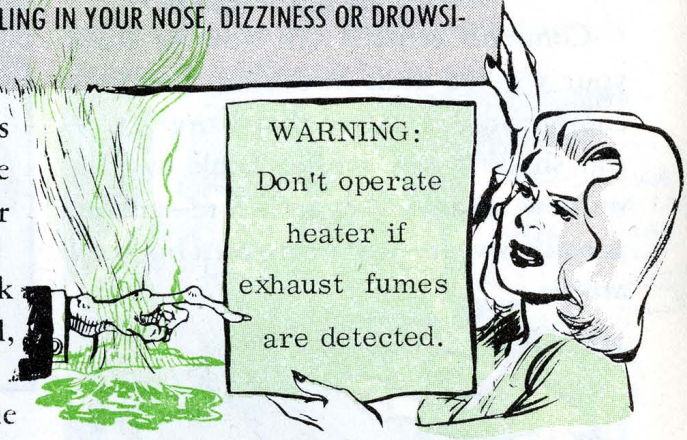
The scent of danger

If you're driving a track or wheeled vehicle and you suddenly start smelling exhaust gas fumes—stop right there, boy. That's the scent of danger.

Personnel heaters are dandy like candy when the white stuff is thick on the ground. The only thing, some personnel heaters could be like some personnel—false friends.

Don't trust 'em too far.

IF YOU GET A GASSY SMELL, DON'T TAKE A CHANCE. FLIP OFF YOUR PERSONNEL HEATER SWITCH. O'COURSE, SMELL ISN'T YOUR ONLY CLUE—SINCE CARBON MONOXIDE **BY ITSELF** IS ODORLESS. WATERY EYES, A BURNING FEELING IN YOUR NOSE, DIZZINESS OR DROWSINESS MIGHT TIP YOU OFF.



Just to remind everybody that it is better to be a little bit cold than a little bit dead, put these words near your heater.

Type this up on white paper and stick it to the control panel with Varnish, Oil, Alkyd resin, FSN 8010-263-3196.

After it dries put a thin coat of the same stuff over the top of the paper . . . this way it'll last, and so will you.

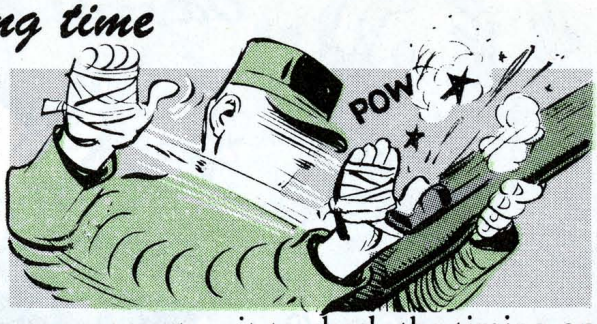
O'course the personnel heater is not the only "gasser." Exhaust gas fumes from the vehicle engine could work their way into the personnel compartment or cab.

So-o-o-o, if your sniffer or eyes or dizzy head tell you you've got an exhaust leak, get out and try to find where it's coming from.

Remember: One sure safe bet during long sessions in a closed buggy with the heater going is to let a good breath of fresh air in about every 15 minutes or so. It might not be too comfortable, but neither is the wooden overcoat you could be heading for.

For more info on this see TB 9-2300-214-10 (8 Apr 59), "Precautions Against Exhaust Fumes, Combat Vehicles", and TB 9-359 (10 Oct 60) "Motor Vehicles, Trailers and Tractors, Personnel Heater Warning Notice."

Timing time



Wearing out your hand banging the operating rod on your M1 rifle—trying to seat the first round in the chamber?

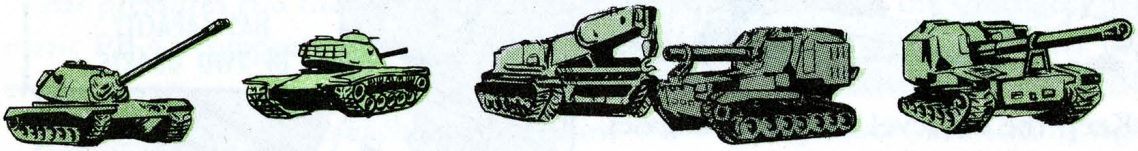
Gettin' a little gun shy from ducking the clip when it takes off into orbit before the last round is fired?

Don't hit the sick book . . . just get your support unit to check the timing on your rifle, 'cause it's showing signs of being off in that all-important department.

Steady use of the M1 leads to wear and tear on the parts that control the timing. And the timing can't be early or late. It's gotta be right on the button or else you've got yourself a problem—that's for true.

And don't put the job off 'til mañana . . .'cause if you get into a real shootin' fracas, you may lose more than time if your timing's off.

Hub leaks



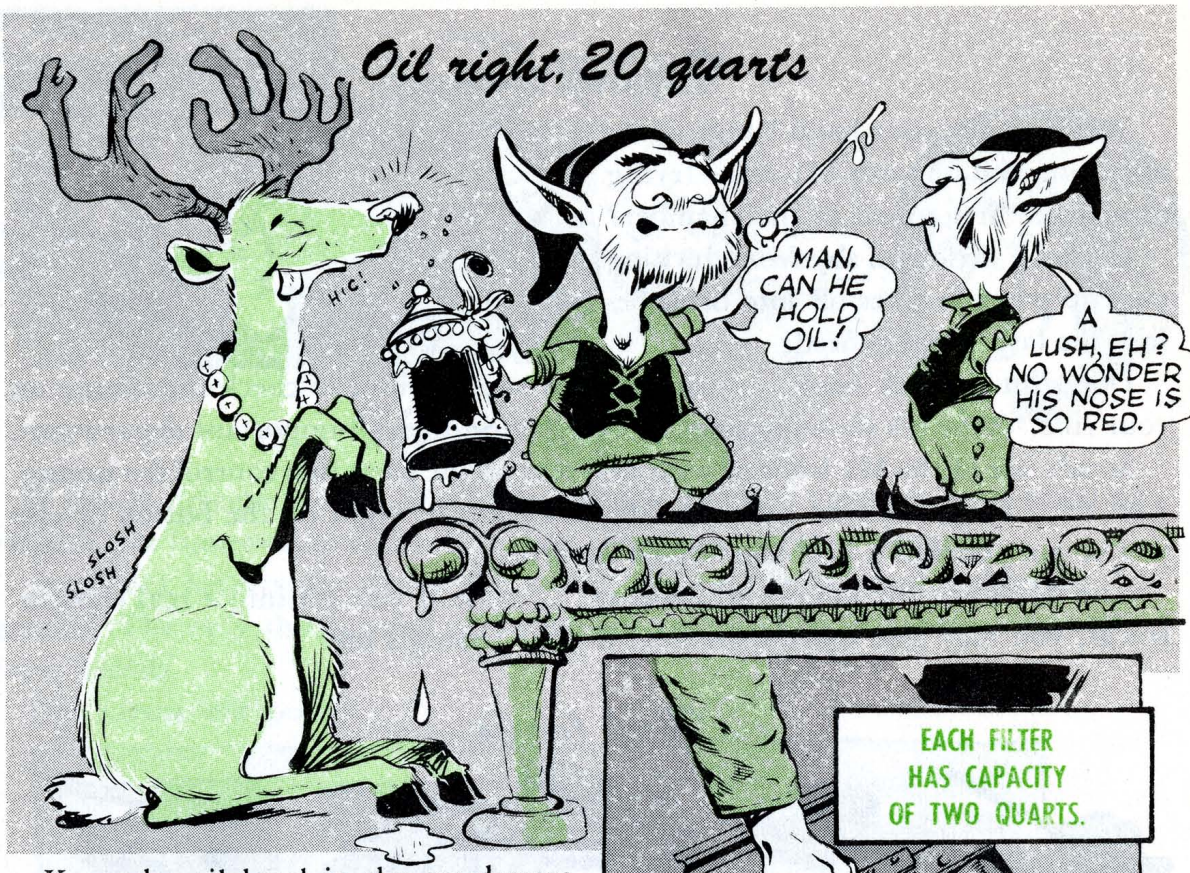
MWO ORD G1-W106 was supposed to cure the lube leaks in the wheel hubs of tanks in the M48 and M103 families as well as the M53 SP gun, the M55 SP howitzer and the M51 tank recovery vehicle.

It will, too, if you do this one extra thing—instead of using the lube fittings listed in the MWO, ask for Fitting, Lubricant Pressure Relief, S, Cad-Pltd, ⅛-in NPTF, ½-in LG, 15-25 PSI Relief Pressure (Dry Seal Pipe Thread).

This little jewel comes with the FSN 4730-542-5683. Ask your Ordnance support for it. They have probably got the word from the design people in Detroit that it is OK for issue. With this fitting the GAA will pop out the top before your hub seals get hurt.

This fitting is standard issue on the M60 tank.

P.S. MORE

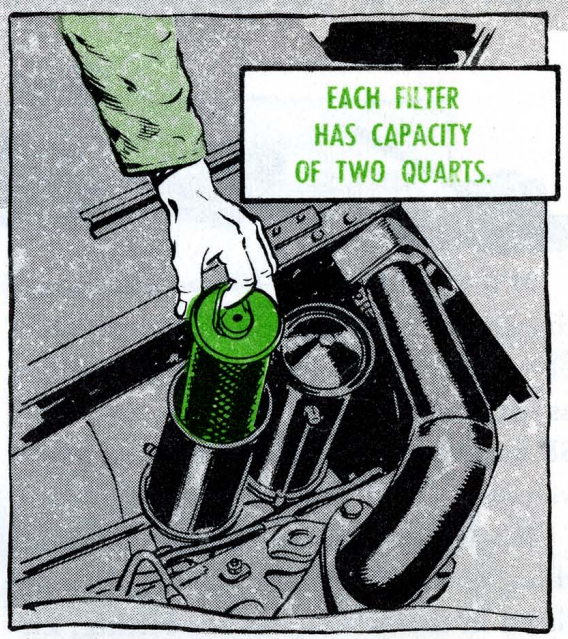


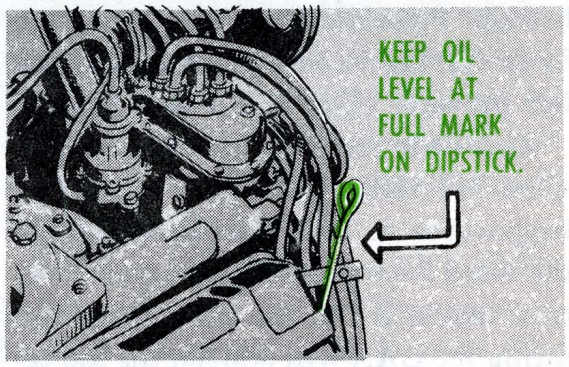
Keep the oil level in the crankcases of your G792-series 10-tonners at the full mark on the dipstick. That'll put a double whammy on your oil worries.

LO 9-2320-206-10 (28 Jul 58) lists the crankcase refill capacity for the M125 10-ton cargo truck and the M123 truck-tractor as 16 quarts. And that checks out with Para 103b of TM 9-2320-206-12 (4 Feb 60) which lists the capacity of the oil pan only as 16 quarts.

But remember you've got two filters with a capacity of two quarts each. So, when you're changing filters, that adds up to a total refill capacity of 20 quarts.

So what about para 7a of the TM that lists the crankcase and filter as 22 quarts? Well, that's a "dry" capacity that's used only if you're putting a new or rebuilt engine into service. Once the engine's well-oiled, some oil stays in the oil passages even when you drain it.



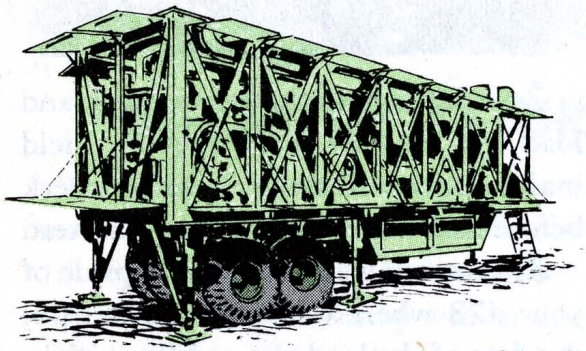


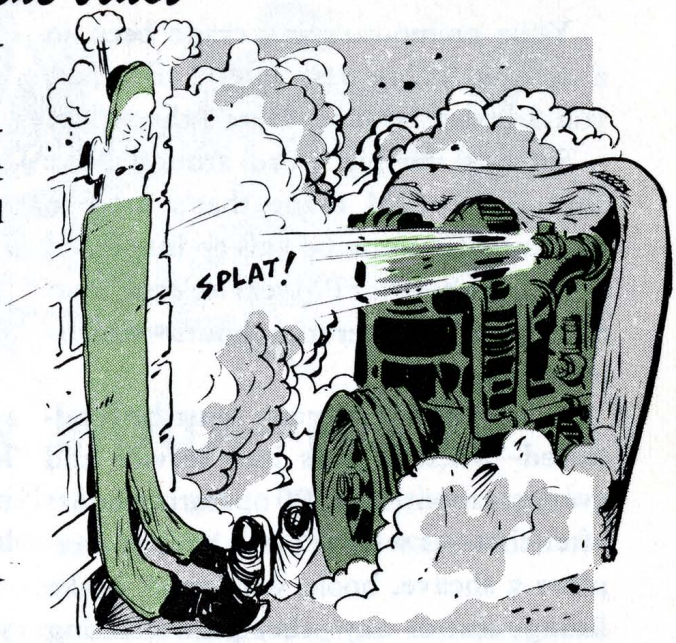
Just keep a sharp eye on the dipstick, like it says in Note 4 of the LO, and keep the level near the FULL mark.

Bend the blast

Ever been stung by a blast of compressed air?

It's not funny. In fact it can be dangerously unfunny. Specially if the blast that hits you happens to pop off around 3000 PSI.

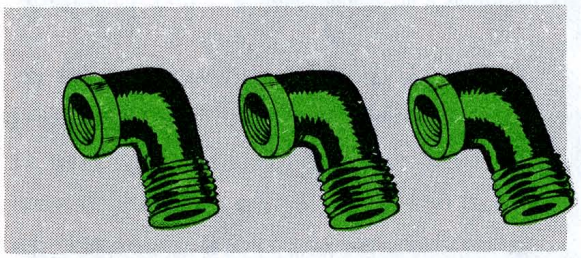




Air pressures run that high, and higher, on equipment like the Chicago Pneumatic PB-44 compressors that come with the A2 and LON-5 Air Products generator plants.

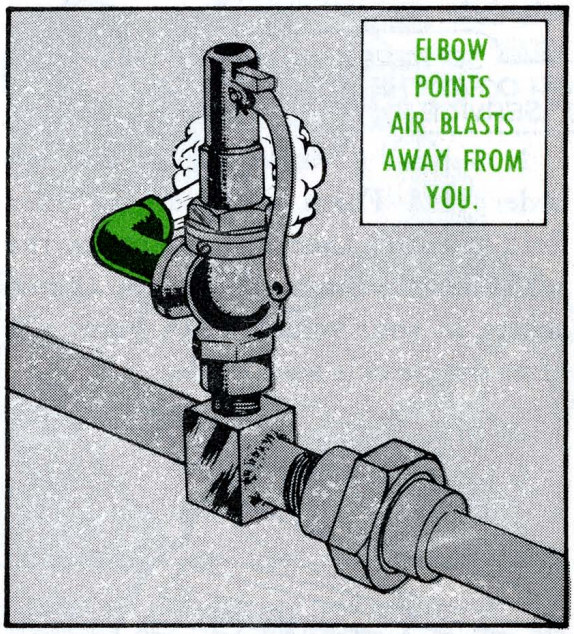
The safety valves on each stage of those PB-44 compressors are sitting right up there where their pop-off blast could hit you while you're working around the unit.

So here's what you do to bend that blast where it's not likely to smack you with full force.



First you order a set of elbows for the pop valves. On each PB-44 compressor you'll need three 1-in size, FSN 4730-254-2744 (Eng), and one ¾-in size, FSN 4730-253-4415 (Eng).

Then you screw an elbow into the outlet of each pop valve. Wind 'em up so the open end of the elbow faces down and away from where you stand while working around the unit.



Do it now, huh? Before you get belted. And check in the TM 5-9100 series or TM 5-9107 series on your compressor for the full dope on the air safety angle.

PS MORE

Jerk! Snatch! Press!

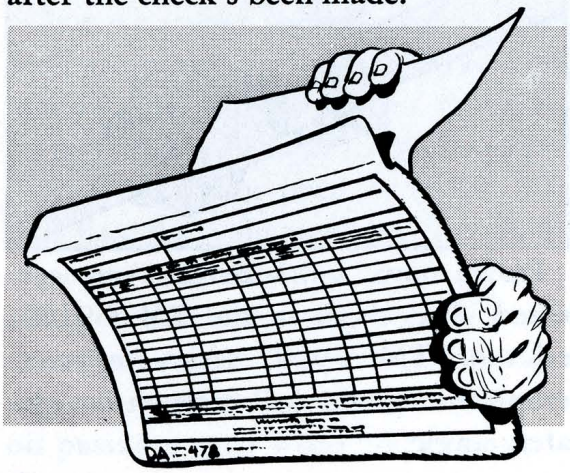
Your ammo-carrying crane been in a weight-lifting test lately? Brother, you'd better be sure! Here's the scoop:

Safety's the big word around Nike sites. Every QM crane that's used to tote missiles must be **safety inspected** during the regular PM service every two months or 100 operating hours—whichever comes first.

In addition, the crane must be **load-tested**—when it goes into service and every six months or 500 operating hours after that—as well as every time you replace a sheave, hook, wire rope, brake lining, seal or any other part affecting the safety of the vehicle.

These inspections and load tests are made by your maintenance support people, but you're the guy responsible for seeing that the jobs're done on schedule.

1. Submit a work request and job order (**DA Form 811**) asking your field maintenance unit to make the safety check. Stash the receipt (green sheet) in your vehicle's DA Form 478 after the check's been made.



1. Ask for both the safety check and load test on your work request. Field maintenance will make the safety check before and after making the load test.

2. Line out a space on the flapside of your 478 where the inspector can put the date of the load test and his initials.

3. Make sure the 478 is on the equipment when it goes to field maintenance.

1. Check the 478 and work order receipt to see that the load test and safety inspection were made and the date of the load test stenciled on the crane boom.

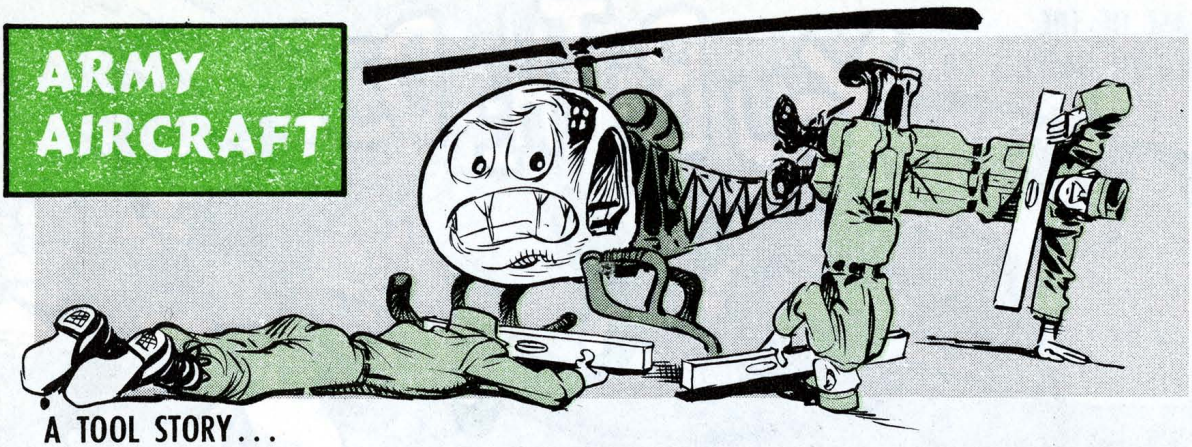
2. Make sure the work order receipt stays in the jacket file.

It goes without saying that any vehicle used for handling ammo has got to be the strong man among MHE's. That's why you want to really knuckle down when it comes to before-, during-, and after- operation PM.

Round up the TM's and the latest changes for your MHE for the real dope.

END

ARMY AIRCRAFT



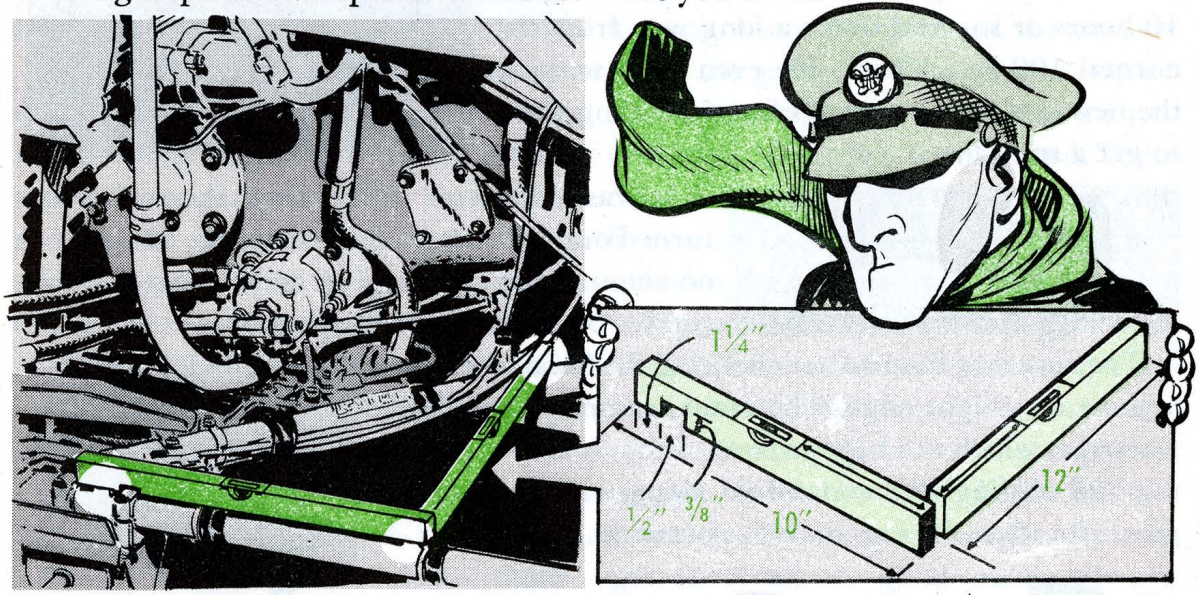
A TOOL STORY...

BALANCE YOUR SIOUX—FASTER

The balancing act on your Sioux (H-13) can get to be a mighty annoying routine—what with all the switching back and forth of the spirit level from lateral to longitudinal position to lateral, etc.

So if somebody comes up with an idea to take level readings in both directions at once, it's bound to be a time-saving gimmick.

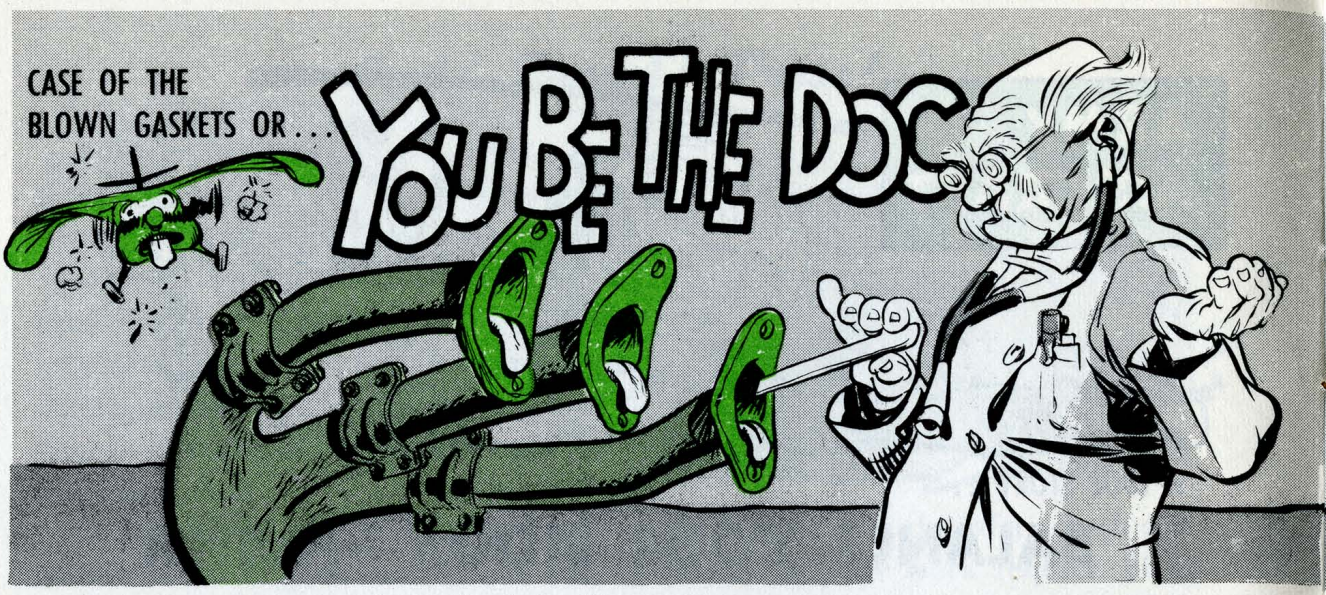
Real simple, too. Just connect two pieces of 3/8-in x 3/4-in steel bar stock together in an "L" that will seat on the three leveling lugs. Then install a spirit level on each arm of the "L" tool. Now check the tool on a leveled helicopter against the old single spirit level operation and see what you think.



This "L" tool allows you to concentrate more on the jacking and adjusting end of the operation, speeding up the whole leveling business. If your outfit has more than a couple of Sioux around you might be able to persuade your CO that this tool's worth making.

The dimensions in the picture worked pretty well on the H-13H series Sioux. You may want to change them for other models.

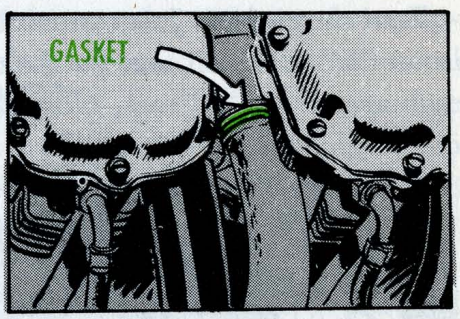
PS MORE



Treating a symptom instead of the disease is one of the most common traps an aircraft engine medic can fall into.

It's a real simple treatment—but useless—to keep replacing parts that give out on you maybe five-six times between **normal** replacement intervals.

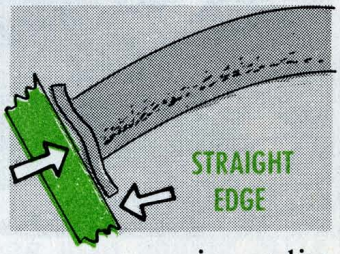
It's like taking APC's to make a headache go away, but you still don't know why you're getting the headaches.



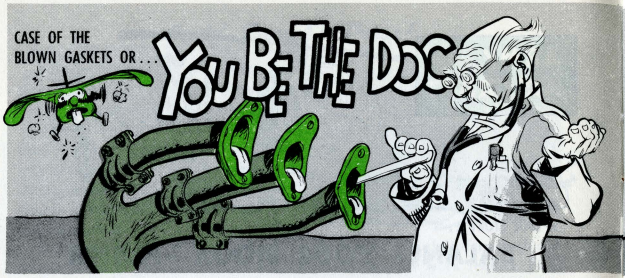
For example, there's the case of one Bird Dog (L-19) mechanic who was constantly having exhaust manifold gaskets burn out on him after 10 hours or so. And that's a long way from the normal 100-hour check. He even tried soaking the new gaskets in water before installing them to get a snug fit.

It was all wasted effort, since the real cause turned out to be warped exhaust tube flanges. So no amount of tightening up on the gasket could correct burning out of the gaskets.

The cure was found after checking the flat of the flange against a straight edge. The main reason for the flange warpage, which can happen to anybody, is alternate heating and cooling of the manifold along with constant engine vibration during aircraft operation.



Now this flange warpage is not limited to L-19's. It happens on other aircraft engines, too. The immediate solution is to use emery cloth, followed up by crocus cloth, to reshape the flange before installing a new gasket. Just place



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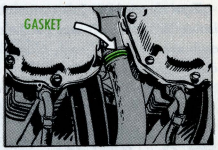

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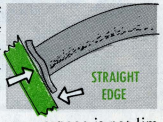

Now this flange warpage is not limited to L-19's. It happens on other aircraft engines, too. The immediate solution is to use emery cloth, followed up by crocus cloth, to reshape the flange before installing a new gasket. Just place each cloth on a flat surface and rub the flange across the cloth.

If this doesn't give you a flat flange, then it's time to replace the exhaust tube. In the event you can't come up with a replacement part you might use a torch to heat the warped tube flange. Then use vice-grip pliers to bend the edges straight, protecting the flange from the plier jaws. Finish up with emery and crocus cloth. This is strictly an emergency type fix, though.

Of course each installation calls for following the info in TM 1-2R-1-511 (23 May 60), which means remembering to coat the cylinder studs with a mixture of 10 per cent molybdenum disulphate (MIL-L-7866) and 90 per cent grease (MIL-L-3545). This keeps the nuts from freezin' on the studs.

And getting the right torque is just as important. After you finger tighten the attaching nuts and washers, you may have to go to TM 1-1-1A-8 (Dec 55) if your aircraft's maintenance manual doesn't include torque readings for these nuts. If you carelessly overtorque the nuts you'll jam the new gasket against the flange. So the gasket will go bad that much faster, and you're back where you started.

Going back to that same L-19 engine for an example, Table XXXII in TM 1-1-1A-8 gives you 100-140 inch-pounds torque for the 5/16-24 nuts used on those flanges. A good way to get the proper set on the gasket and flange is to stop at the 100 inch-pounds **minimum** torque or slightly above first time around. Then come back somewhere between one and five hours later to retorque to a higher value in the acceptable torque range.

If you find yourself messing around with exhaust tube and gasket replacements a little too often, you also want to be thinking about writing out your trouble on a UR (DD Form 1275). Could be the engineers might want to get involved. A good medic always looks to calling in a specialist when the patient doesn't seem to be cured permanent like.

25 MORE

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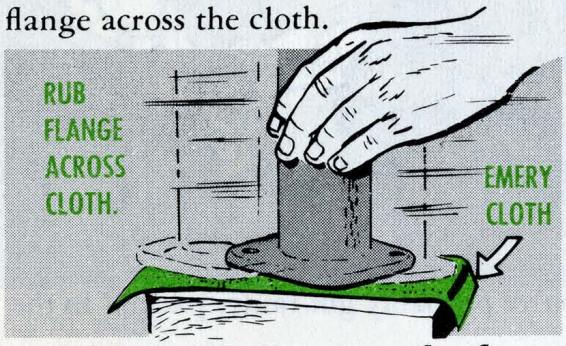

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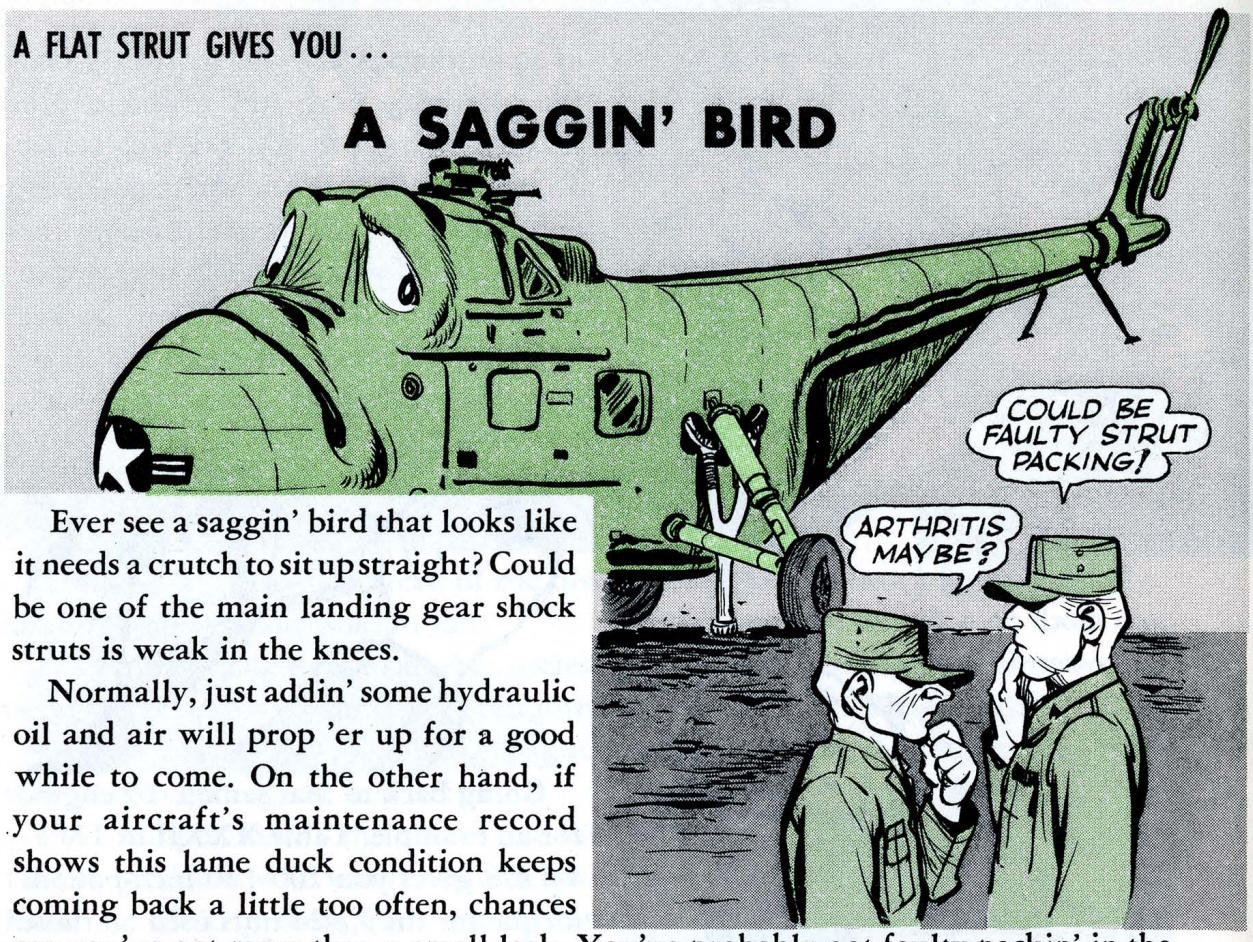
P.S. MORE

A FLAT STRUT GIVES YOU . . .

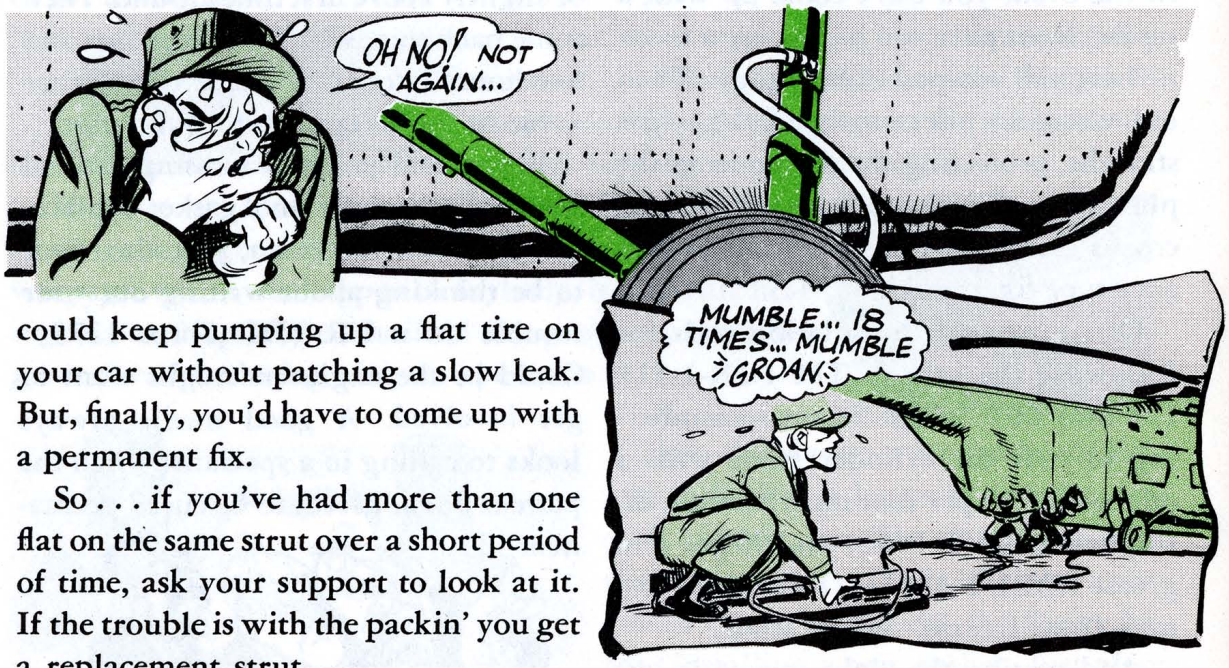
A SAGGIN' BIRD



Ever see a saggin' bird that looks like it needs a crutch to sit up straight? Could be one of the main landing gear shock struts is weak in the knees.

Normally, just addin' some hydraulic oil and air will prop 'er up for a good while to come. On the other hand, if your aircraft's maintenance record shows this lame duck condition keeps coming back a little too often, chances are you've got more than a small leak. You've probably got faulty packin' in the strut, which calls for depot level repair.

After all, packin' doesn't last forever—it's gonna go bad in time. You could keep servicing a strut with oil and air maybe a dozen or more times, just like you could keep pumping up a flat tire on your car without patching a slow leak. But, finally, you'd have to come up with a permanent fix.



So . . . if you've had more than one flat on the same strut over a short period of time, ask your support to look at it. If the trouble is with the packin' you get a replacement strut.

PICKING OUT THE SCREWDRIVER IS...

A FLUKY BUSINESS

Puttin' the screws to the ol'fly-buggy is a necessary—and sometimes tricky—business.

Being that recessed head screws are the preferred items in some aircraft fastening situations, you've got a built-in tool problem ready to rear its head—if you let it.

The problem is that you've got two major kinds of recessed screw heads being used on Army aircraft and two kinds of screwdrivers in your tool kits to fit each of 'em. So-o-o . . . can you tell the difference between a Phillips or a Reed and Prince type screwdriver and screw?

They're near twins on first glance. That's why you take a second look if you suspect you're not getting the bite you want.

It's "mixing" the two types of screws on one panel that starts the trouble—not the fact of having both screwdriver tips in your tool kits.

For example, one of these new Mohawks (AO-1) started life with a particular access plate fastened on by somewheres around 200 screws—all R&P. There was no problem until a few screws eventually got replaced. Yep! Some replacements were R&P, some were Phillips . . . and the mechanic kept using his trusty R&P No. 2 every 100 hours.

Well, you can get away with that about two or three times, until the screw head begins to look like it's time to get the drill.

The best way is to make sure all the screws are alike. So, any time you replace recessed heads, change 'em **all** to Phillips on **all** Army aircraft. Then you have a replacement SOP.

You might say that butchered-up screws are one of the trials in a weary mechanic's life. But with a little attention and care you can keep the operation from being all fouled up.

FIRST . . . CHECK THE BOTTOM OF THE SCREW RECESS.

An R&P comes to a point.

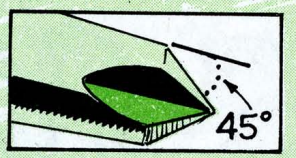
The Phillips' is round.

SECOND . . . CHECK THE SCREW SLOTS.

R&P's taper in real **sharp**, giving more of a **square-cut** appearance at the surface of the screw head.

The Phillips has less taper and rounder cuts on the surface.

BOTH SCREWDRIVER TIPS, NATURALLY, WILL MATCH THE RECESSES, GIVE OR TAKE A LITTLE FOR WEAR AND TEAR.



R&P's have sharper points with 45-degree angled flukes.

The Phillips tips are rounder with 30-degree fluke angles.

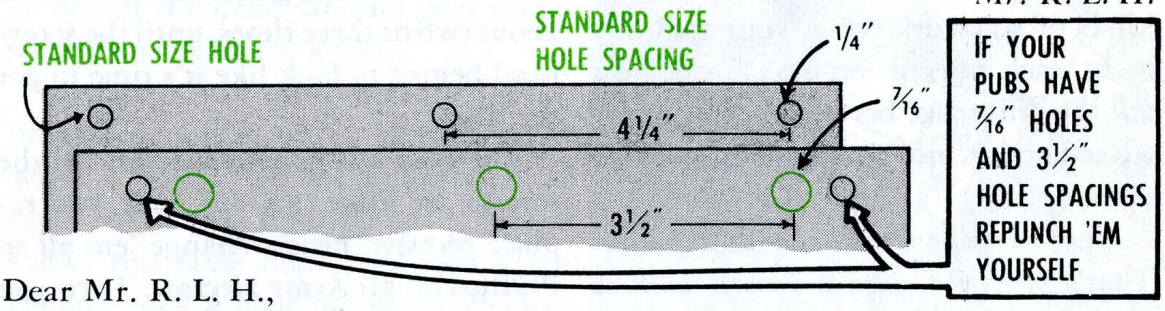
PS MORE

AVIATION PUBS... REPUNCH 'EM Y'SELF

Dear Windy,

In recent months we've been getting TM 1-series aviation publications with different size holes and center-to-center measurements. The ones with 1/4-in holes and centers 4 1/4 inches apart have to be repunched to fit our "Army Aircraft Maintenance Publications" binders. This is the 7510-282-4757 binder with 7/16-in holes and the 3 1/2-in center-to-center spacing listed in SM 10-1-7500. What's the latest on this?

Mr. R. L. H.



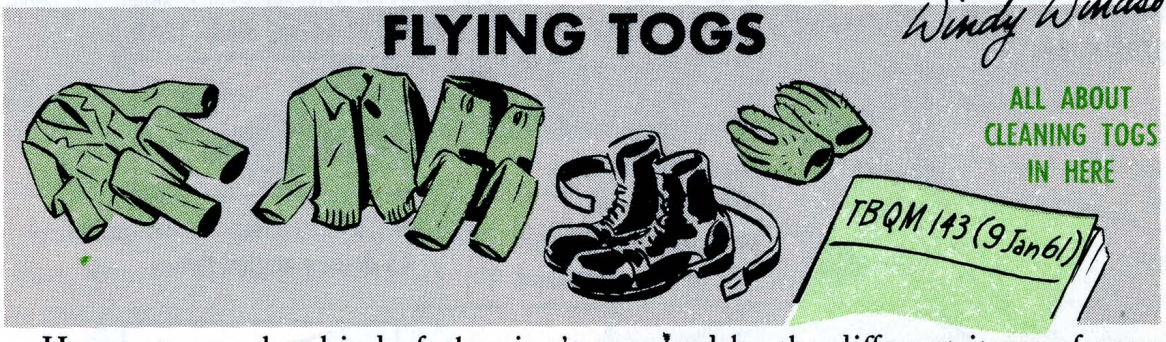
Dear Mr. R. L. H.,

From now on you should be seeing more and more of the smaller hole aviation pubs with the wider spacing between holes (4 1/4-in center-to-center, 1/4-in hole). This is the standard size hole and hole spacing for Army pubs and will fit loose leaf binder 7510-188-6955 (QM), also listed in SM 10-1-7500.

Eventually, the TM's with the larger holes, which fit binder 7510-282-4757, will disappear. But if you don't want to play around with two different binders right now, you can just keep repunching pubs the way you've been doing.

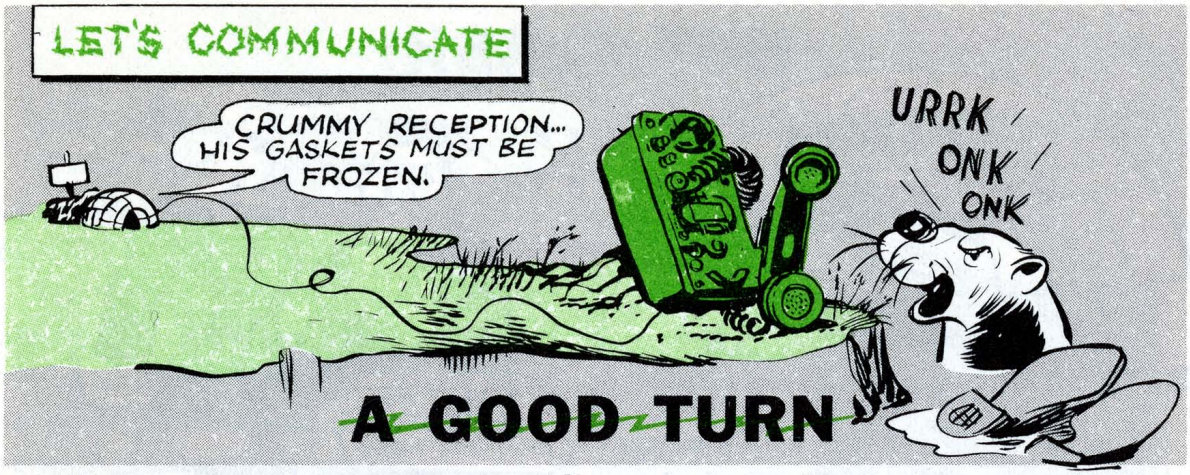
Windy Windsock

FLYING TOGS

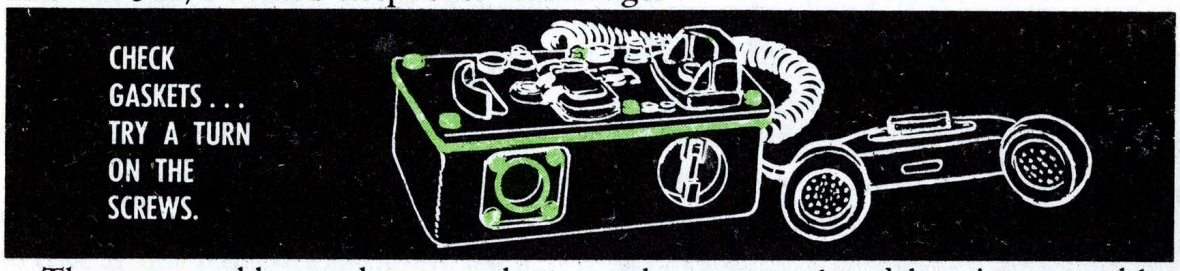


Hung up on what kind of cleaning's required by the different items of your flying duds? No sweat. The coveralls take scrubbing in hot water with mild soap. Jackets and trousers take dry cleaning. Use saddle soap on the leather parts. Wool glove inserts can be dry cleaned or washed in warm or cold **(not hot)** water with mild soap. It's all spelled out in TB QM 143 (9 Jan 61).

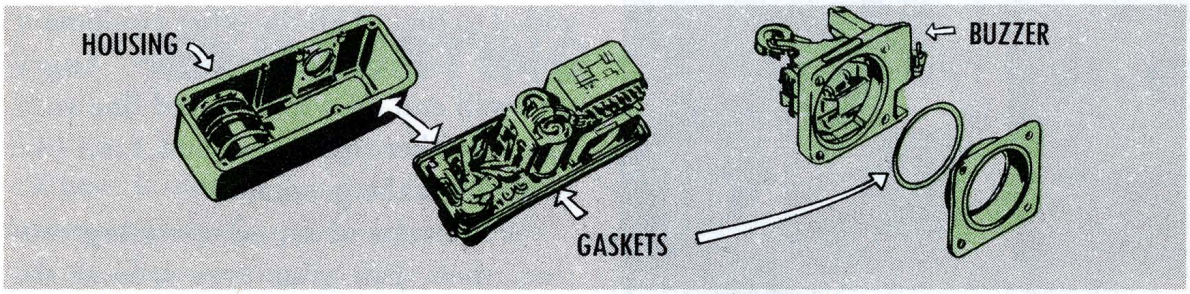
PS END



Changes in temperature . . . humidity . . . wear and tear . . . compression . . . or just plain aging. It all adds up to one thing on the gaskets of your TA-43/PT and TA-312/PT field telephones—shrinkage.



Those two rubber gaskets—one between the top panel and housing assembly —and the other between the buzzer and housing assembly—shrink slightly under pressure from the tightening screws. Just the least little bit.



But that shrinkage is enough to allow a tiny amount of moisture or water to seep inside. Bad. Trouble is, there's no way to tell—by looking—whether those gaskets have shrunk. The only way to tell is with a screwdriver, by trying to take a turn on certain screws.

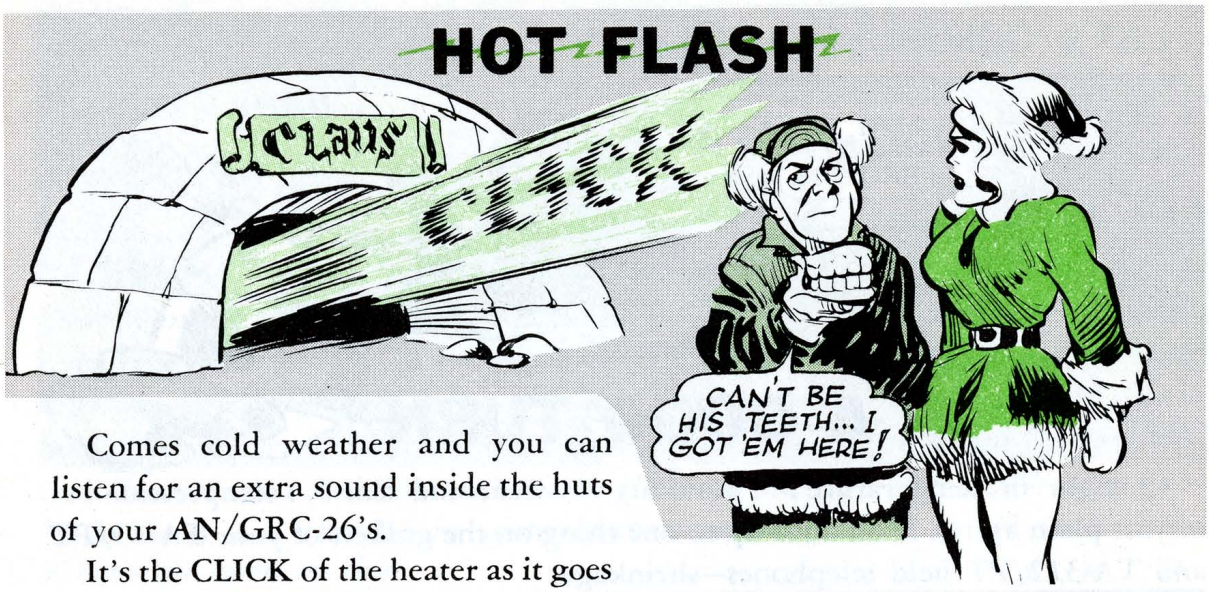
In the case of the top panel, the screws are located at each of the four corners and about midpoint along the two long edges of the panel. As for the buzzer, there're four screws to check. One at each corner of the diaphragm.

If they're loose by only a quarter turn, it could mean that water will find a way in—or already has.

So, next time you're working around your TA-43 or TA-312, try a turn on each of those screws. If they don't budge, it means your gasket is tight. If they do, then you've discovered a shortcoming and corrected it at the same time. But watch the strong arm stuff. Just snug 'em up.

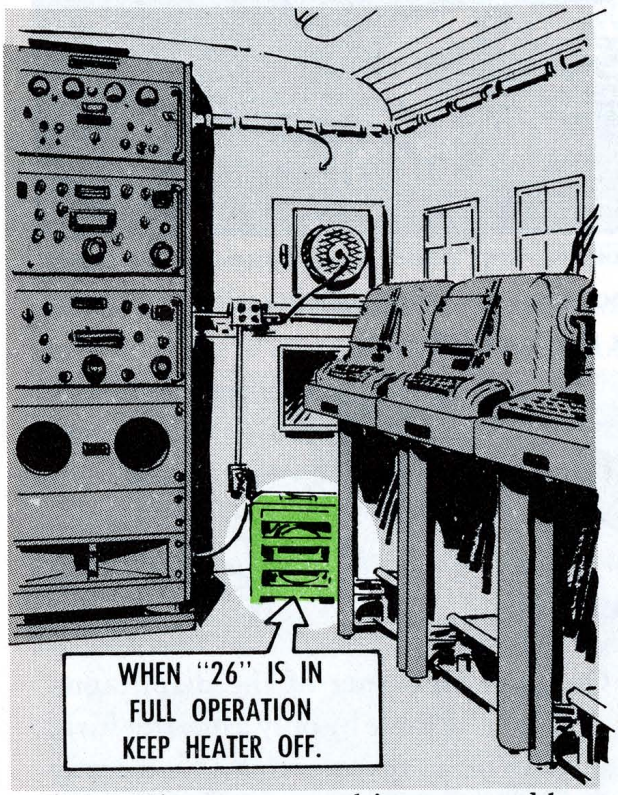
PS MORE

HOT FLASH



Comes cold weather and you can listen for an extra sound inside the huts of your AN/GRC-26's.

It's the CLICK of the heater as it goes into action to warm things up and keep 'em that way. Mighty comforting and comfortable. But—bear one thing in mind when your finger reaches over to start up that heater.



It draws a healthy 1,500 watts. And when your "26" is in full operation, an extra 1,500 watts piles too much of a drain on the power supply. The Generator Set PU-294/G (consisting of two PU-286/G Generators) is rated at 5 KW's.

And that rating sure is exceeded when the drain of the electric heater is added to that of all the other equipment during full operation. Your "Angry 26" will end up with reduced line voltage, a weaker signal and loud, fatal-like gasps from the generator.

As a matter of sound operating routine, then, run your eyes around the shelter before snapping on the heater. If everything else is on the line, leave 'er off.

And, of course, turn the heater off pronto if it happens to be running when the rest of the radio set is operating.

CORE CARE

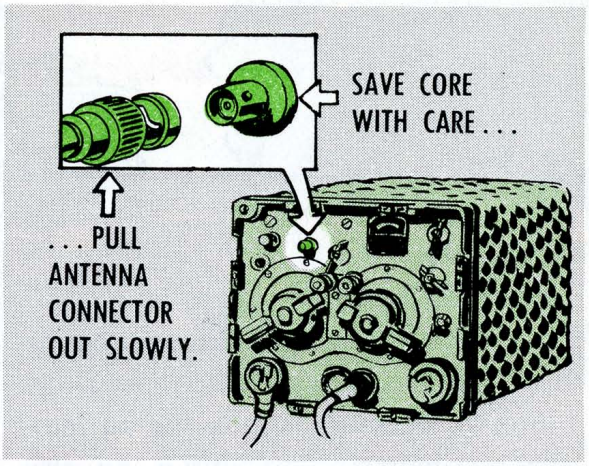
Just a reminder to care for your core.

'Cause a lost core—or a loose one—can cancel out your RT-66/GRC, RT-67/GRC or RT-68/GRC.

The tiny item under discussion is the plastic insert that nestles inside the shell of the antenna connector. Right there on the upper left portion of the panel of your receiver-transmitter.

The routine connect-disconnect action between the antenna cable and the receptacle connector tends to work that core loose. Especially if an operator or repairman is in too much of a hurry to pull his antenna out.

If the core is lost, of course, the entire antenna connector is useless. And since the core is not requisitionable by itself, the receptacle connector has to be replaced.



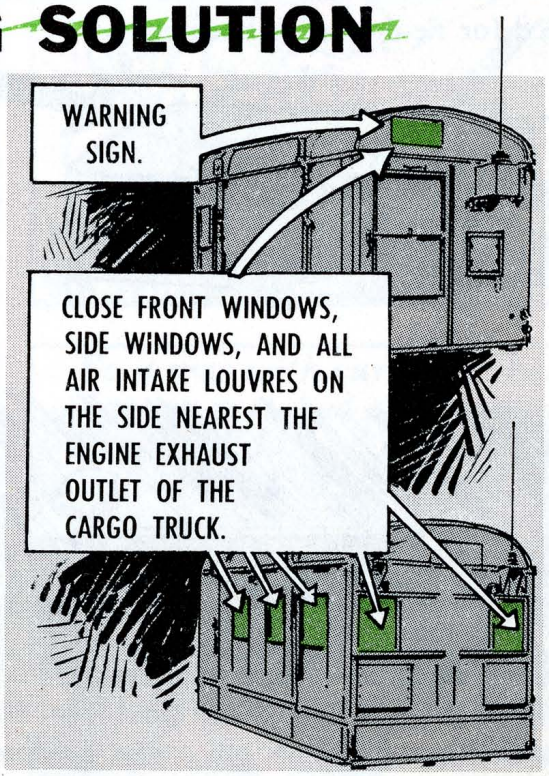
On the other hand, if that disconnect is performed slowly and with a touch of care, chances are 1000 per cent greater that the core will stay in its shell and the receiver-transmitter will stay on the air.

It's a basic preventive maintenance routine which, like the TM says, will "prevent certain troubles from occurring."

EXHAUSTING SOLUTION

When it comes to the danger of carbon monoxide poisoning there's nothing like a reminder. Which is the whole idea behind URGENT MWO 11-5410-207-25/1 (27 Mar 61). It applies to all units with an AN/GRC-26( ), AN/GRC-41 or AN/GLQ-2.

The MWO authorizes your unit repairman to install a warning sign over the shelter door which says, among other things, ". . . close front window, side windows, and all air intake louvers on the side nearest the engine exhaust outlet of the cargo truck". . . when the shelter is in transit.



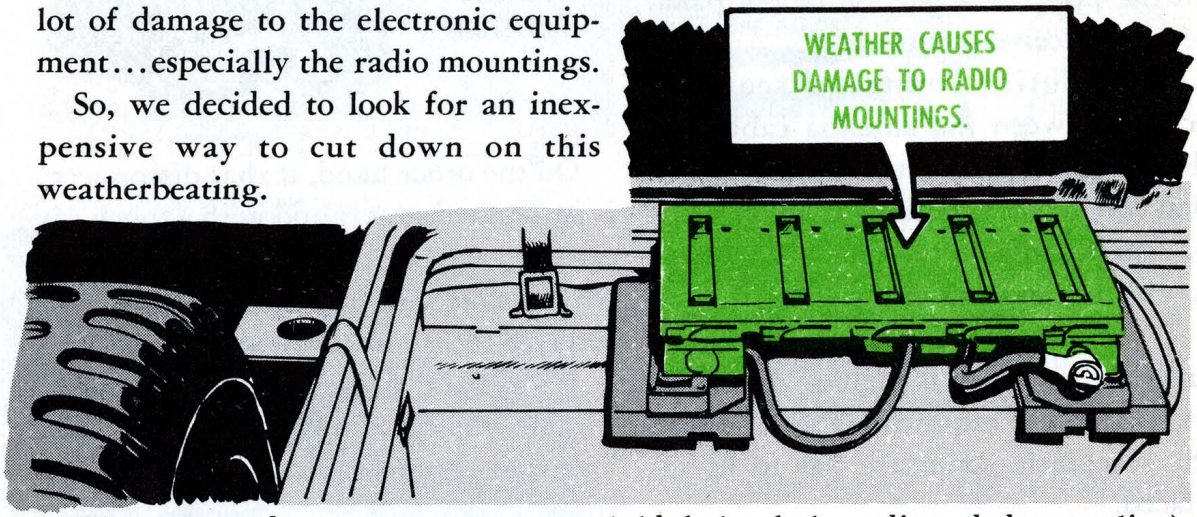
PS MORE

COVERS FOR COMM MOUNTINGS

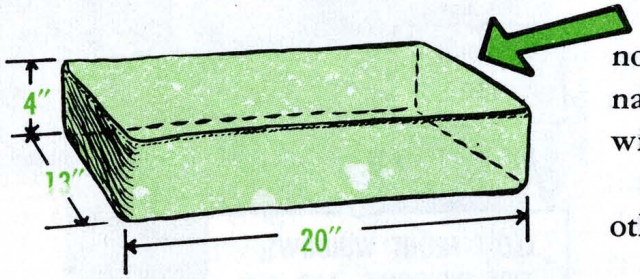
Dear Editor,

Because our outfit keeps many of its vehicles outside, the weather causes a lot of damage to the electronic equipment...especially the radio mountings.

So, we decided to look for an inexpensive way to cut down on this weatherbeating.



We scrounged up some scrap canvas (old shelter halves, discarded tarpaulins). We cut and sewed them to fit the mountings snugly. The snug fit removes the need for tie-downs or buckles.



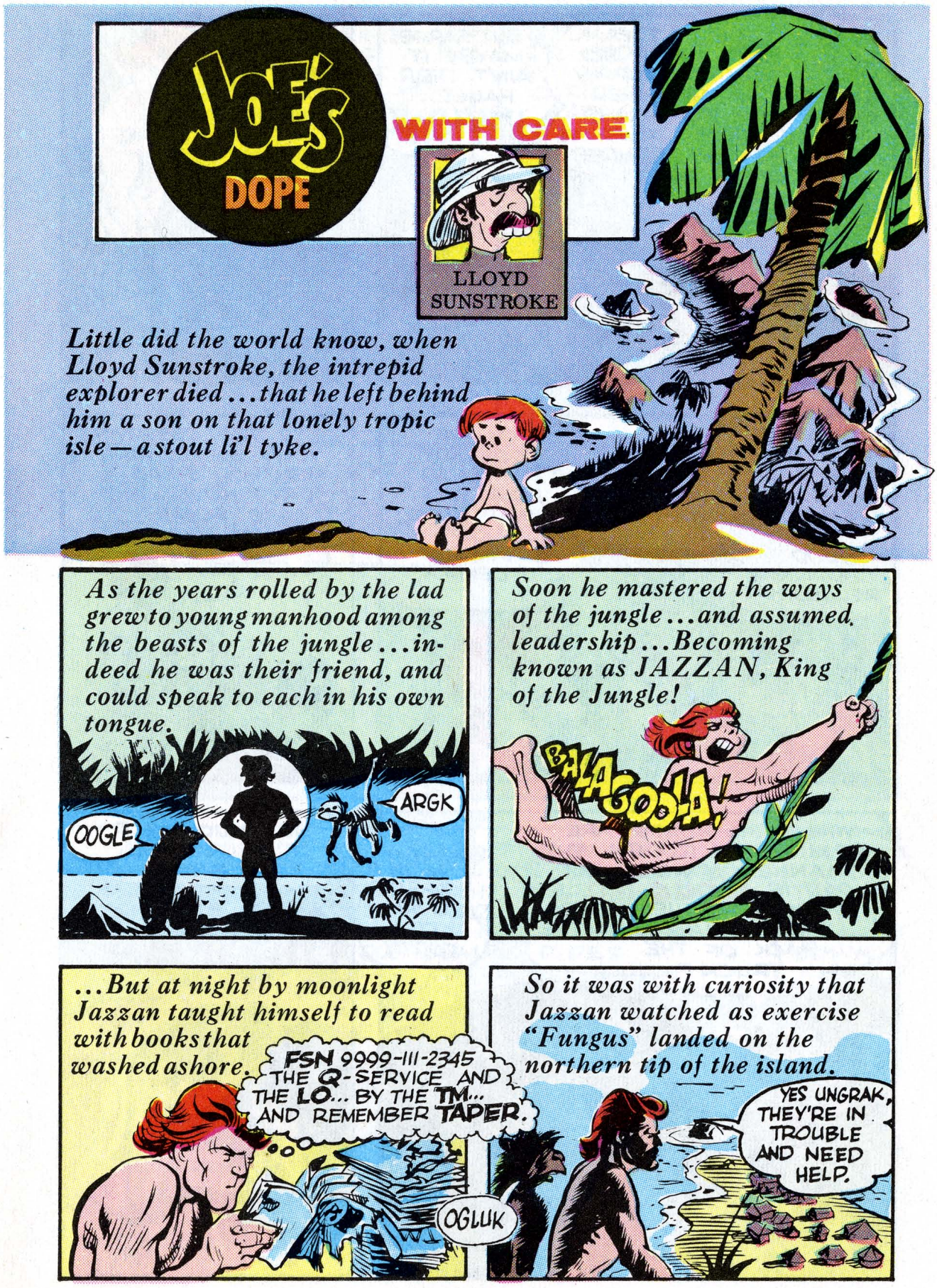
Thanks to the covers, the mountings now stay drier and need less maintenance. The radios, of course, come along with their own covers.

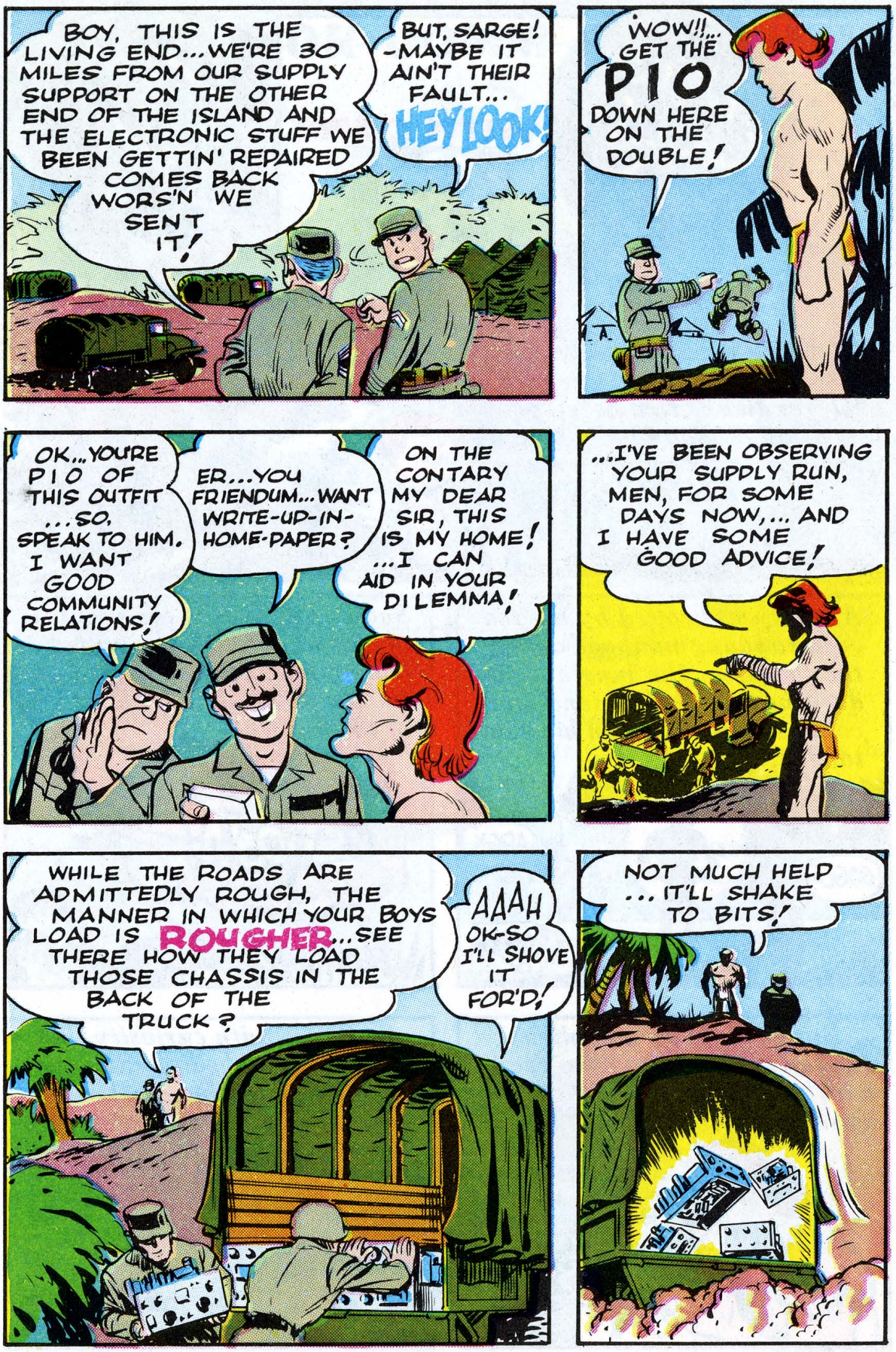
We thought this fix might help some others in maintaining their equipment.

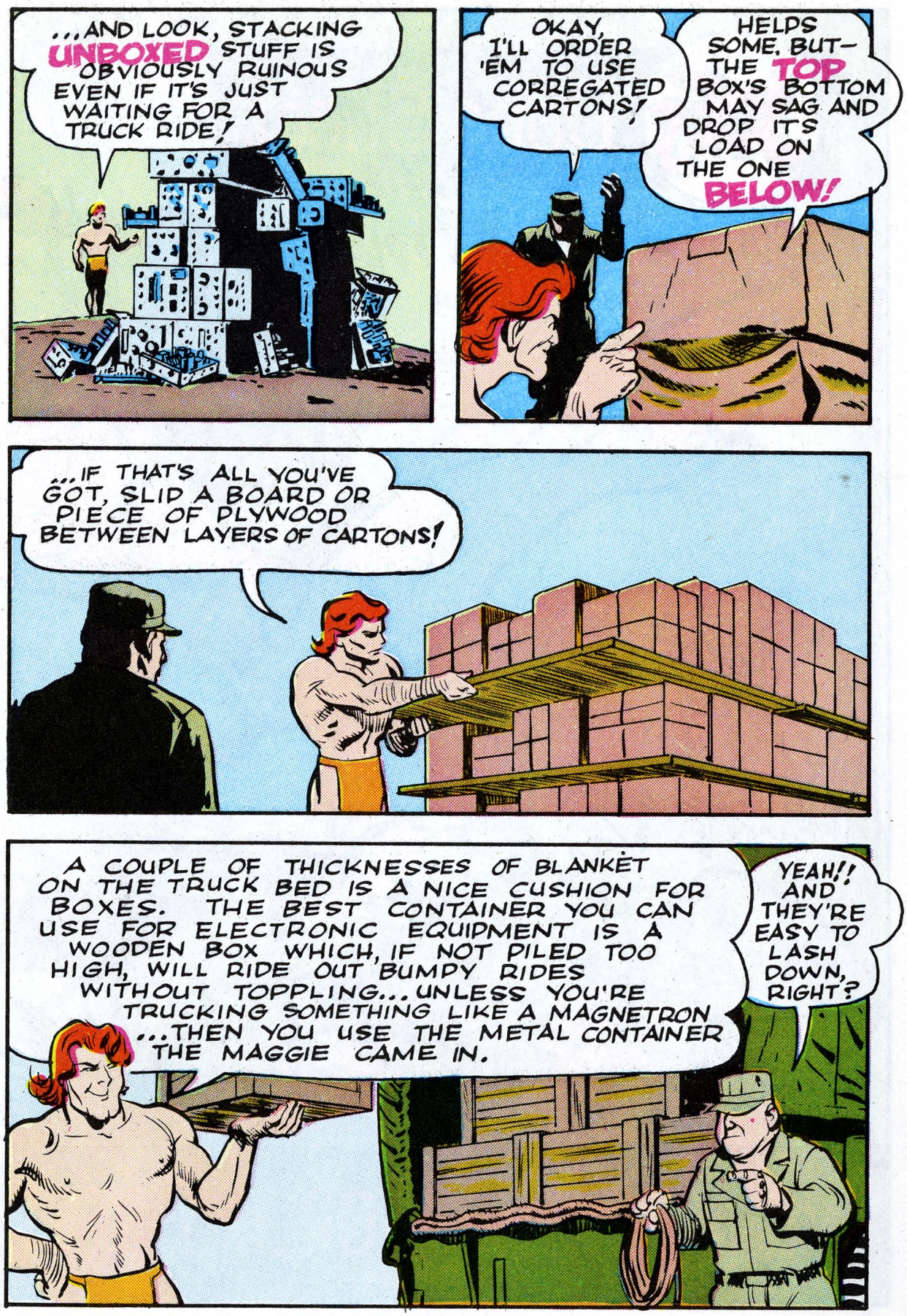
The Gang
Fort Ord, Calif.

(ED NOTE—Sounds like a good idea, especially for vehicles like jeeps that don't provide much shelter for comm equipment.)

PS END


JOE'S DOPE
WITH CARE
LLOYD SUNSTROKE
Little did the world know, when Lloyd Sunstroke, the intrepid explorer died ... that he left behind him a son on that lonely tropic isle — a stout li'l tyke.
As the years rolled by the lad grew to young manhood among the beasts of the jungle ... indeed he was their friend, and could speak to each in his own tongue.
OOGLE
ARGK
Soon he mastered the ways of the jungle ... and assumed leadership ... Becoming known as JAZZAN, King of the Jungle!
BALAGOOLA!
... But at night by moonlight Jazzan taught himself to read with books that washed ashore.
FSN 9999-111-2345 THE Q-SERVICE AND THE LO... BY THE TM... AND REMEMBER TAPER.
OGLUK
So it was with curiosity that Jazzan watched as exercise "Fungus" landed on the northern tip of the island.
YES UNGRAK, THEY'RE IN TROUBLE AND NEED HELP.


BOY, THIS IS THE LIVING END...WE'RE 30 MILES FROM OUR SUPPLY SUPPORT ON THE OTHER END OF THE ISLAND AND THE ELECTRONIC STUFF WE BEEN GETTIN' REPAIRED COMES BACK WORS'N WE SENT IT!
BUT, SARGE! -MAYBE IT AIN'T THEIR FAULT...
HEY LOOK!
WOW!!... GET THE PIO DOWN HERE ON THE DOUBLE!
OK...YOU'RE PIO OF THIS OUTFIT ...SO, SPEAK TO HIM. I WANT GOOD COMMUNITY RELATIONS!
ER...YOU FRIENDUM...WANT WRITE-UP-IN-HOME-PAPER?
ON THE CONTARY MY DEAR SIR, THIS IS MY HOME! ...I CAN AID IN YOUR DILEMMA!
...I'VE BEEN OBSERVING YOUR SUPPLY RUN, MEN, FOR SOME DAYS NOW,... AND I HAVE SOME GOOD ADVICE!
WHILE THE ROADS ARE ADMITTEDLY ROUGH, THE MANNER IN WHICH YOUR BOYS LOAD IS ROUGHER...SEE THERE HOW THEY LOAD THOSE CHASSIS IN THE BACK OF THE TRUCK?
AAAH OK-SO I'LL SHOVE IT FOR'D!
NOT MUCH HELP ... IT'LL SHAKE TO BITS!

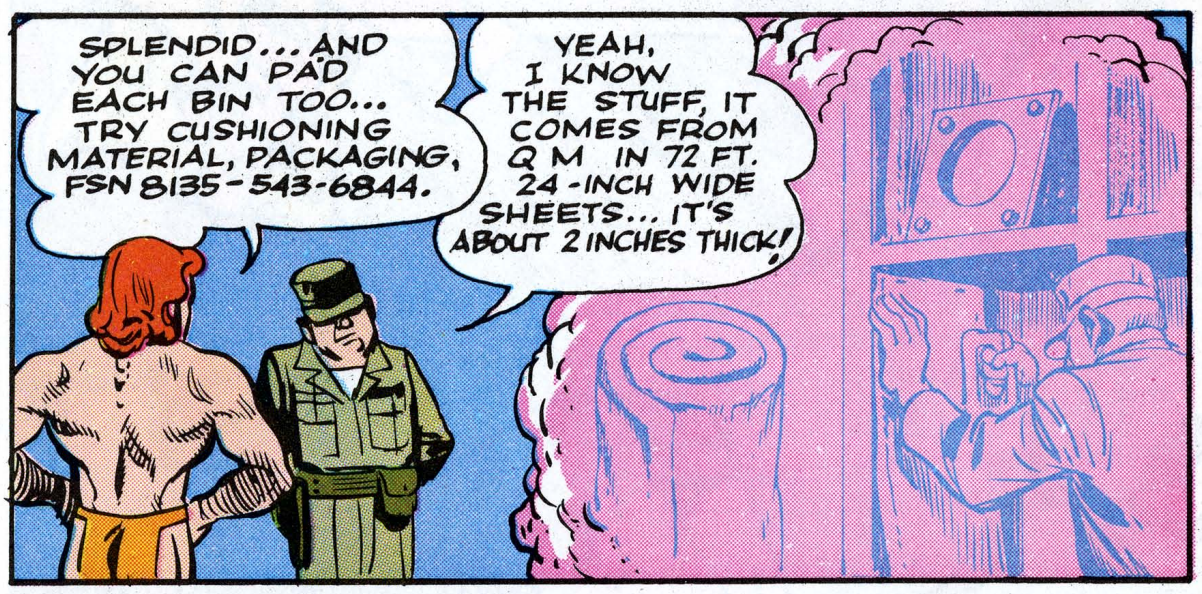

...AND LOOK, STACKING UNBOXED STUFF IS OBVIOUSLY RUINOUS EVEN IF IT'S JUST WAITING FOR A TRUCK RIDE!
OKAY, I'LL ORDER 'EM TO USE CORREGATED CARTONS!
HELPS SOME, BUT— THE TOP BOX'S BOTTOM MAY SAG AND DROP ITS LOAD ON THE ONE BELOW!
...IF THAT'S ALL YOU'VE GOT, SLIP A BOARD OR PIECE OF PLYWOOD BETWEEN LAYERS OF CARTONS!
A COUPLE OF THICKNESSES OF BLANKET ON THE TRUCK BED IS A NICE CUSHION FOR BOXES. THE BEST CONTAINER YOU CAN USE FOR ELECTRONIC EQUIPMENT IS A WOODEN BOX WHICH, IF NOT PILED TOO HIGH, WILL RIDE OUT BUMPY RIDES WITHOUT TOPPLING... UNLESS YOU'RE TRUCKING SOMETHING LIKE A MAGNETRON ...THEN YOU USE THE METAL CONTAINER THE MAGGIE CAME IN.
YEAH!! AND THEY'RE EASY TO LASH DOWN, RIGHT?

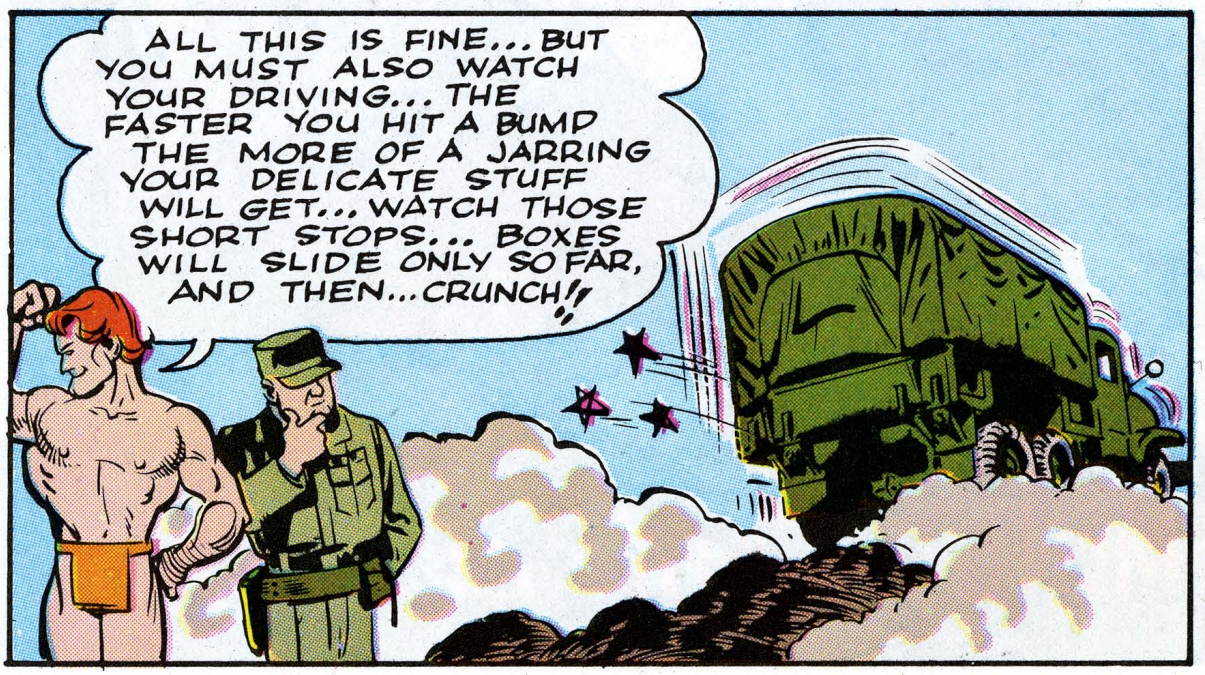
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULL

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

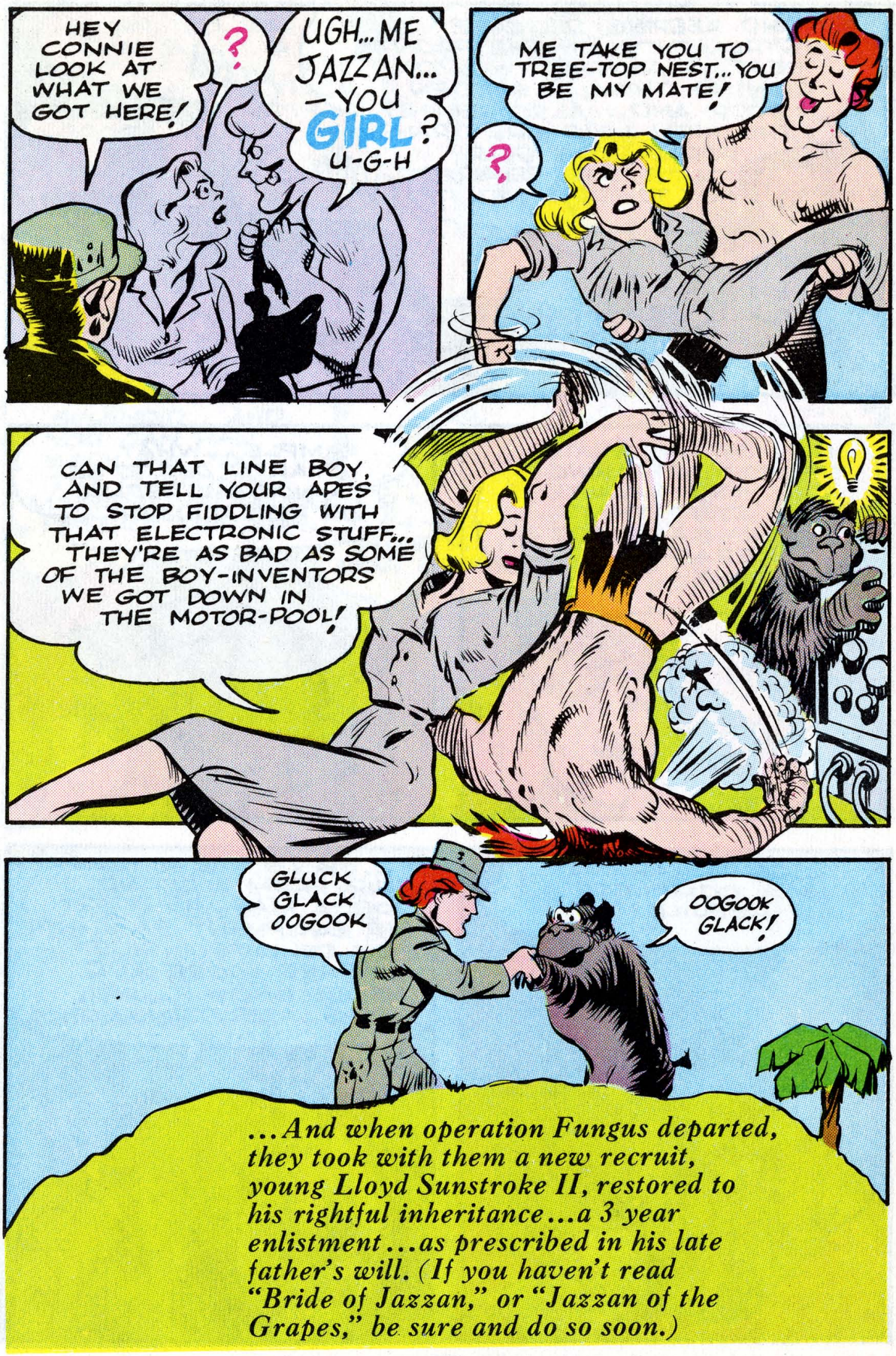
LETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

THEN, TOO, YOU CAN BUILD A SET OF BINS FOR CARRYING ELECTRICAL EQUIPMENT... WITH DOORS AND...
I GOTCHA JAZZAN, WE COULD MOUNT 'EM ON THE TRUCKS!

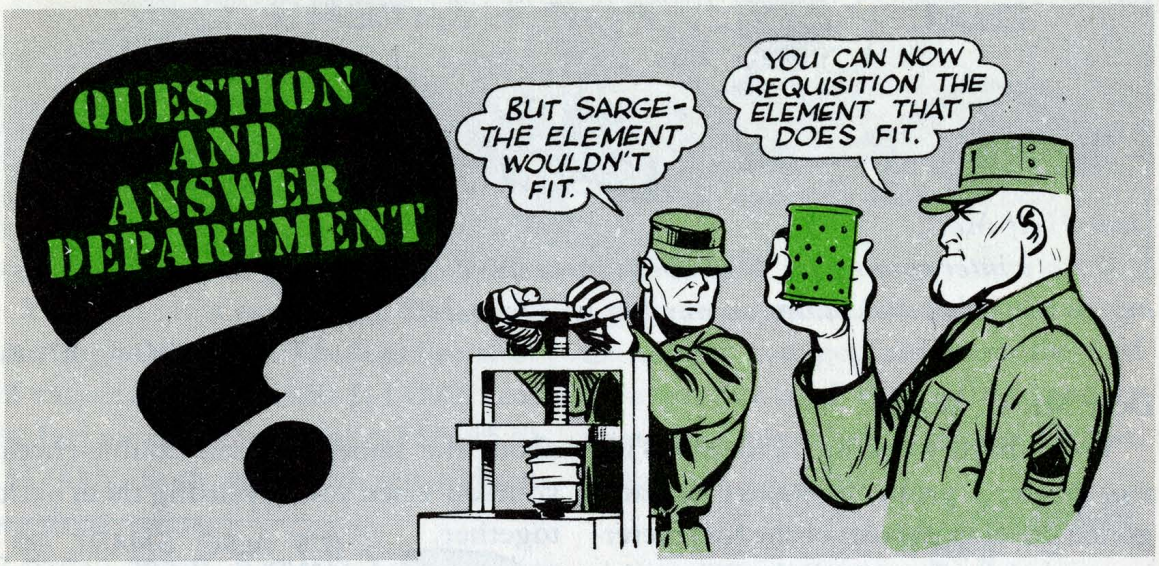

SPLENDID... AND YOU CAN PAD EACH BIN TOO... TRY CUSHIONING MATERIAL, PACKAGING, FSN 8135-543-6844.
YEAH, I KNOW THE STUFF, IT COMES FROM Q M IN 72 FT. 24-INCH WIDE SHEETS... IT'S ABOUT 2 INCHES THICK!


ALL THIS IS FINE... BUT YOU MUST ALSO WATCH YOUR DRIVING... THE FASTER YOU HIT A BUMP THE MORE OF A JARRING YOUR DELICATE STUFF WILL GET... WATCH THOSE SHORT STOPS... BOXES WILL SLIDE ONLY SO FAR, AND THEN... CRUNCH!!

AND KEEPING DELICATE INSTRUMENTS ON THE FRONT SEAT IS ANOTHER WAY OF RUINING THEM; A SUDDEN STOP AND... ALSO, REMIND THE MEN WHO ARE TRANSPORTING THE GEAR THAT'S TO BE REPAIRED, NOT TO FIDDLE WITH IT!
CRUNCH
CLUNK
CRASH
SCREEEECH
BUT JAZZAN, WHAT'S THE POINT OF TAKING ALL THESE PRECAUTIONS WITH STUFF THAT'S GOIN' BACK FOR REPAIR, ANYHOW?
SIMPLE... WHAT STARTS OUT TO BE A NORMAL REPAIR OR REPLACEMENT...
PLEASE REPLACE TUNING COIL, FSN
...COULD ARRIVE AS A COMPLETE REBUILD!
PLEASE REPLACE TUNING COIL, FSN?
...OR ON THE RETURN TRIP FROM A REPAIR JOB, A MAN MIGHT GET HIS EQUIPMENT BACK WITH ITS DELICATE INSIDES JARRED LOOSE AND NEVER KNOW IT... UNTIL WEEKS LATER DURING A CRISIS.



...And when operation Fungus departed, they took with them a new recruit, young Lloyd Sunstroke II, restored to his rightful inheritance...a 3 year enlistment...as prescribed in his late father's will. (If you haven't read "Bride of Jazzan," or "Jazzan of the Grapes," be sure and do so soon.)



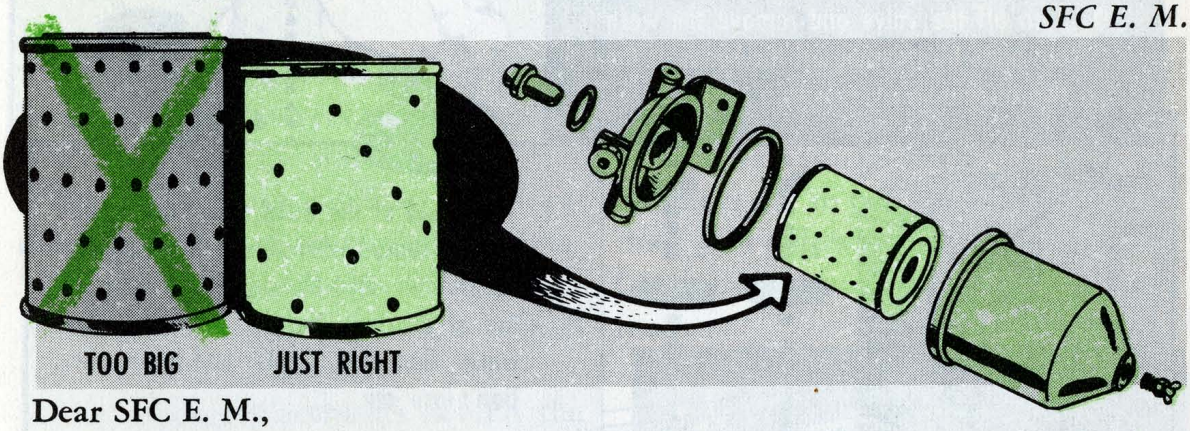
THE RIGHT ELEMENT

Dear Sgt Dozer,

What's the story on the fluid pressure filter element replacements for the diesel engine on our Super C Tournadozers? We requisition elements under FSN 2910-287-5473 like it says in TM 5-2420-207-12P, but the element we receive is about 1/4-in too long and won't fit into the filter case.

What happened?

SFC E. M.

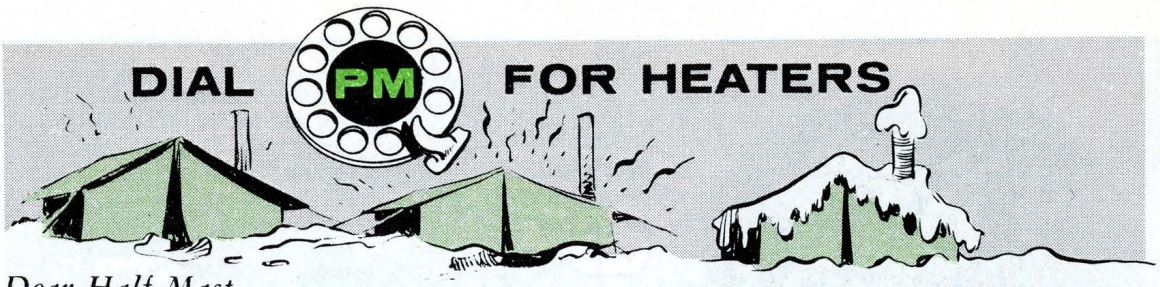


Dear SFC E. M.,

Got our signals crossed somewhere. Both the TM and the FSN you used are right. But, as you found out, the Cyclone filter elements P-278 that've been stocked under FSN 2910-287-5473 are too large for the filter in your engine. However, all depot stocks of these filters have been turned back to the company and you'll be getting the right replacement from now on.

If you have any oversize Cyclone P-278 elements on hand, don't try to jam them into the filter. Turn them in to your support unit and requisition new ones. You should get the right ones now.

PS MORE



Dear Half-Mast,

With winter coming on, how about some word on the out-of-round holes wearing in the valve dial plates on our big tent heaters.

CWO C. W. F.

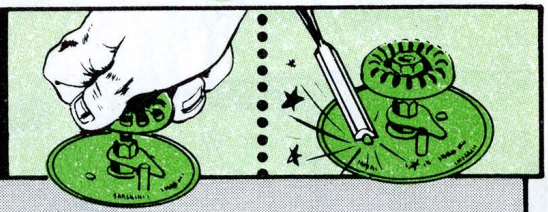
Dear Mr. C. W. F.,

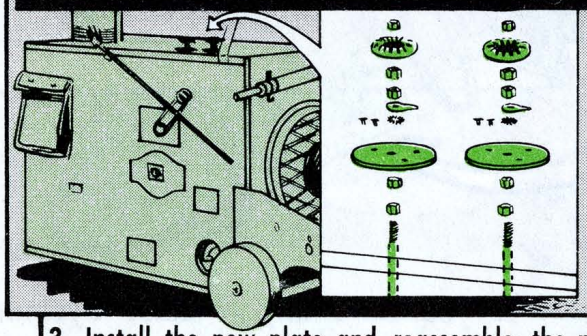
Your hard-working 250,000-BTU tent heater's probably sooner or later gonna develop gaposis of the fuel metering and shutoff valve dials. When this happens, replace 'em.

It's a smart idea to replace one dial at a time. This way you can't get 'em mixed up and, since both assemblies are about the same, you can double-check yourself when you're putting them back together.

Here's the way to do it—one dial at a time:

1. Turn off the valve and remove the worn out plate by chipping off the heads of the two aluminum rivets with a chisel.

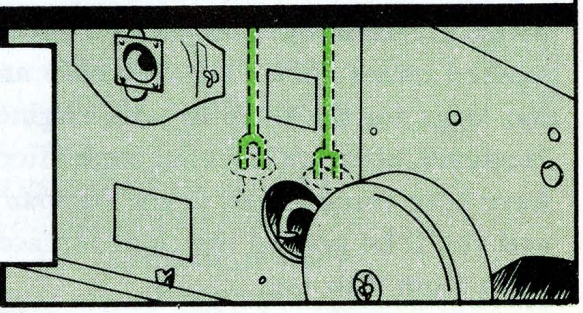


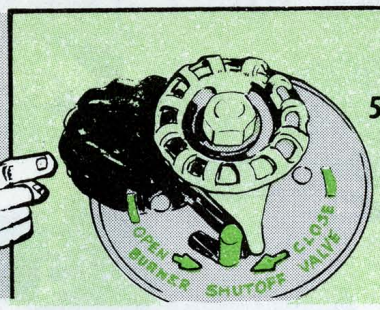


2. Take hold of the hand wheel and gently pull the forked extension shaft (along with the pointer, etc.) through the hole in the top of the unit. Next, remove the hand wheel, four nuts, pointer and lockwasher. Don't lose 'em.

3. Install the new plate and reassemble the pointer. Make it finger-tight. Now fasten the hand wheel securely.

4. Shove the forked extension shaft gently back into the heater and engage the forks in the plates the way they were originally. The best way to do this is through the safety trip lever opening.





5. Fasten the dial plate with two rivets and secure the pointer in the OFF position by tightening the two nuts against the pointer and lockwasher.

You can get a new set of dials from your support people. The fuel line shut-off valve takes FSN 4520-J11-0001, and the fuel metering valve takes FSN 4520-J11-0002. Both come with self-tightening drive rivets.

If your support unit doesn't have the dials, they can get 'em from the QM Equipment and Parts Commodity Center, Columbus General Depot, Columbus 15, Ohio.

Half-Mast

STORAGE PORRIDGE

Dear Sgt Dozer,

Some supply shack lawyers in this Engineer outfit claim there's a difference between "shelf life" and "storage life" on perishable supplies and parts.

Mox nix to me what they call it, as long as none of those items go bad before we get to use them. What do you say?

Sgt D. C. S.

Dear Sgt D. C. S.,

I'd say you've got the main message, Sarge. Let your lawyers beat their gums while you mind the store.

On items that spoil fast, you draw only enough stock to stay in business. Then you back up that working stock with requisitions timed to arrive when you need replacements.

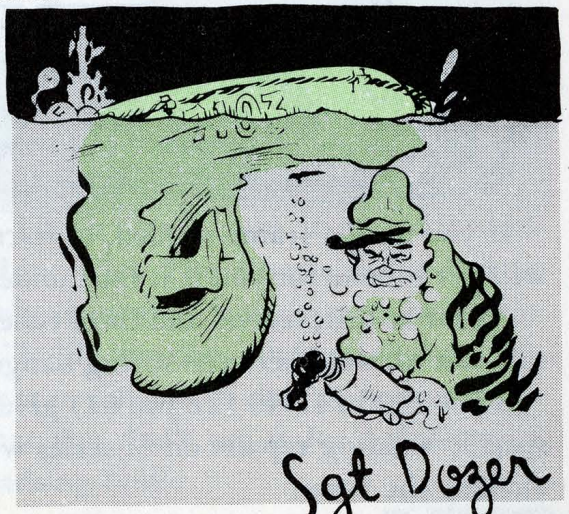
You stack replacements behind the old stuff, rotating stock so supplies get used before they spoil on the shelf.

And for official scoop on general Engineer items and repair parts, you can run it down by FSN in SB 5-60.

SB 5-60 informs you, f'rinstance, that FSN 5420-588-4897, Vulcanizing Fluid, can spoil in six months or less. Sooner than that, if you fail to follow Note 16 about keeping the cover tight.

So you play perishables close to the vest.

This way you're not so likely to get caught tryin' to patch a float with fluid that won't flow—specially when the CMI team comes rumbling up your road.



Sgt Dozer

P.S. MORE

THE FRAME AIN'T THE SAME

Dear Half-Mast,

Can you give us the latest dope on frame welding? AR 750-2300-7 says you can't weld vehicle frames between spring brackets, but there are MWO's that call for welding brackets to the frames.

Is there a difference between welding a frame and welding to a frame?

Sgt C. C. M.

Dear Sergeant C. C. M.,

There sure is.

The idea back of AR 750-2300-7 is that a frame so far gone that it needs welding is already so beat up that 'taint worth saving. The Army used to weld frames but in many cases new cracks showed up soon after the vehicles were put back in service.

The AR was issued to prevent welding between spring hangers because it was found that in many cases this repair was a waste of time and money.

On 'tuther hand, welding **to** a frame is a horse from an entirely different horse race. The MWO's are applied on vehicles that still have a lot of service in them. The welding methods called for by the MWO's have been carefully worked out so there is a minimum danger of damaging the frame.

Even so, this is strictly a 4th echelon deal because it depends on so many things. F'rinstance, if the frame was heat treated during manufacture, all bets are off. It is not to be welded at all, even for brackets.

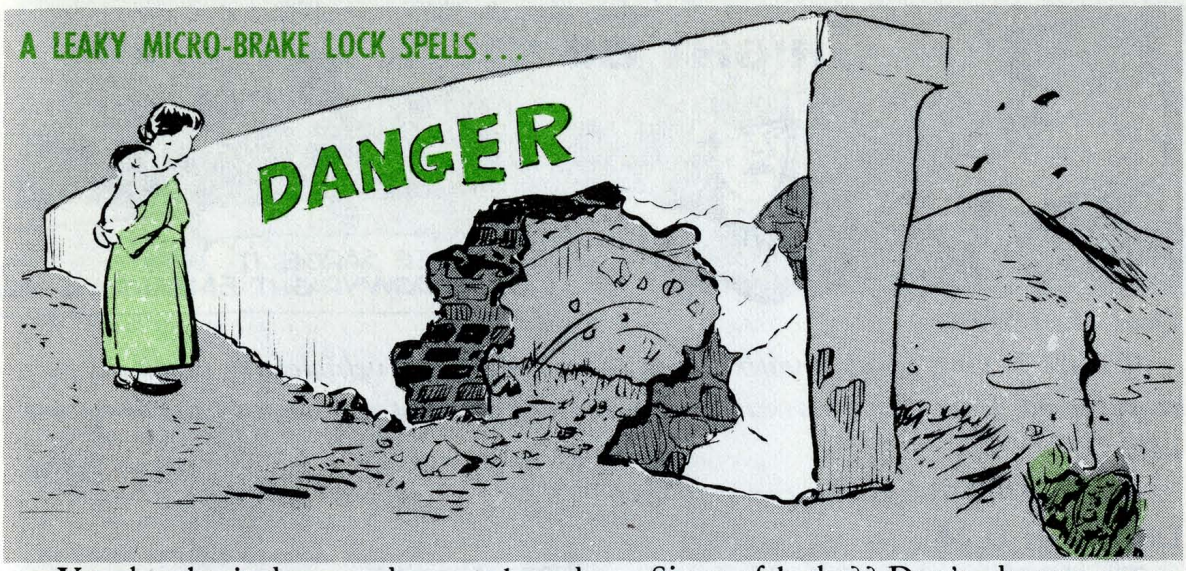
The slide rule boys have done a lot of work on frame welding and they are handing out a new TB which lists some exceptions to the general rule in the AR.

In these cases, and in these cases only, welding **of** the frame is OK!

If you need a frame welded, contact your field maintenance support and they will get it done for you if it falls under the rules of the TB.

As far as first, second and third echelons are concerned, AR 750-2300-7 which says not to weld between spring hangers, is still the law.

TB 9-2300-247-40 (22 Jun 61) gives your support the authority to make certain specific welding repairs on M-series wheeled vehicles from ¼-ton up to and including the 5-ton.



You betcha it does, and a couple sad faced drivers can vouch for the fact. They found out—too late—what a leak in the lock unit FSN 2530-040-2228 can do to an M62 or M246, 5-ton wrecker.

Yep, you guessed it, they wrecked an M62 so badly it couldn't be used no more.

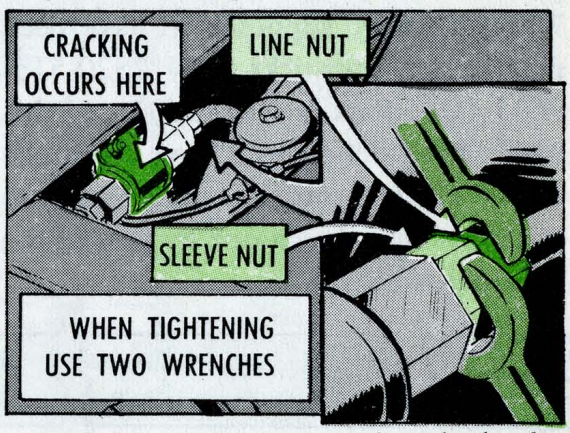
Reports tell of the aluminum tube (Mfrs. Part No. MAN-BC10) in the lock breaking or cracking . . . probably due to metal fatigue from overtightening of line connectors when the lock got installed, or vibration due to a loose mounting clamp. Natch, the hydraulic fluid is set up for an easy exit out the cracked tube—and you've got no more brakes.

Sooo, to protect you and your truck (until a better lock comes along) check the unit out before each operation.

Look and feel for signs of leaky fluid on the lock and line connectors. You can spot the unit by lifting the master cylinder access cover on the cab floor . . . right along the left frame member.

While you're at it, make sure the holding clamp is centered and secured good'n solid.

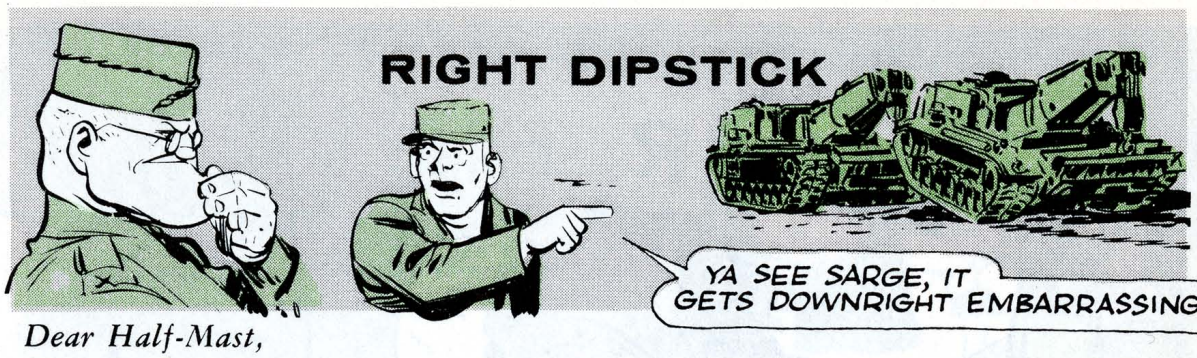
Signs of leaks?? Don't, do not, try to tighten the line connector nuts or fittings (sleeve nuts) on either end of the lock. Play it safe and put a new lock on.



Anytime you're connecting the brake lines to the lock, use two wrenches. Hold the end fitting (sleeve nut) with one wrench so it won't turn . . . then tighten the line connecting nut with the other wrench. If you don't hold and brace the sleeve nut, the stress put on the tube will weaken or cause it to crack and leak.

Like it says in para 36 of TM 9-8028 (June 55): The electric brake lock is only used to lock the service brakes in a "hold" position, when using the crane or rear winch. The data plate warns you that you don't use it for a prolonged parking brake.

P.S. MORE



Dear Half-Mast,

We are having trouble with our M51 tank recovery vehicles. So much oil gets transferred from the transmission to the engine that we have to deadline the vehicle.

Can you tell us how we can stop this?

MSgt D. M.

Dear MSgt D. M.,

The fault is most likely in the dipstick.

During the M51 modification program the early dipsticks, Ord Part No. 7709124, were supposed to have been replaced by dipsticks FSN 2520-513-9635 (Ord Part No. 8348405). If this hasn't been done you'll have too much oil in your transmission. This excess oil will flow into the engine by way of the breather tube.

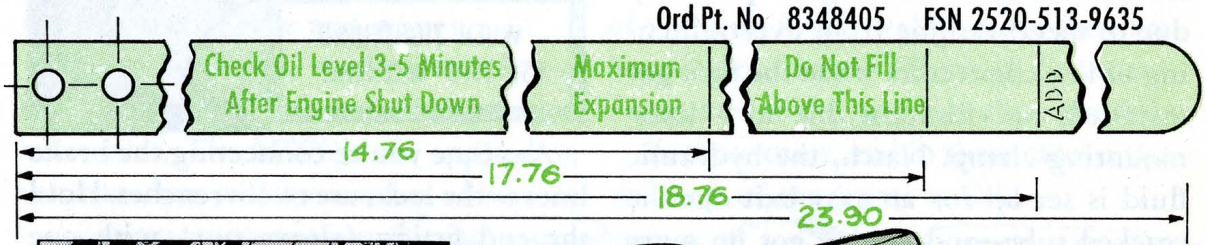
The best thing you can do is first be sure you have the right-dipstick and then keep the transmission oil level on the "hungry" side . . . at or only slightly above the ADD OIL mark.

That way there won't be extra oil that can be drawn through the breather tube into the engine.

Your Transmission Oil Level Dipstick should look like this:

M51 V T R

Ord Pt. No 8348405 FSN 2520-513-9635



PS MAGAZINE IS FOR YOU

Your unit can get enough copies of PS Magazine for you and all the other guys who need it. You have to make sure that your local Publications Section knows how many your unit needs. Then your Pubs Section orders enough copies for everybody on DA Form 12-4 from the publications depot.

PS END

A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjutant General's Distribution Center Bulletins.

TECHNICAL MANUALS

TM 3-4240-201-12 Jul Filter Unit, Gas-Particulate, Hospital, Six-Man, 12 CFM, M7A1.

TM 3-4240-207-20P Aug Filter Unit, Gas-Part, GED, 300 CFM, ABC-M6 & Filter Unit, Gas-Part, EMD, 300 CFM, ABC-M6.

TM 5-1940-200-20P Jun Boat, Bridge Erec, Highway Prod Mod HPI 27B, Marinnette Mar Corp Mod A27.

TM 5-3740-201-25P Jul Sprayer, Insect, Curtis Auto Devices Mod CAD 11080-1-A.

TM 5-3820-205-10/2 Jun Crusher, Jaw, Diesel & Elec Driven Eagle Crusher Mod 5157.

TM 5-3895-200-15 Jul Batching Plant Aggregate; Standley Mod 7000.

TM 5-3895-219-20P Jun Mixer, Conc, 16 Cu Ft Constr Mach Mod 16SM.

TM 5-3895-236-20P Jun Spreader, Conc, Conc Mach, Ltd, Mod S-200-250.

TM 5-3895-242-20P Jun Drier-Mixer, Bit Conc Mat: Littleford Mod US-700-L.

TM 5-3910-202-15 Jul Conveyor, Belt: Barber-Greene Mod PG70.

TM 5-4120-220-25P Jun Air Conditioner Floor Mntg; Air Cooled 18,000 BTU; 115/208V.

TM 5-4310-221-20P Jun Comp, Rot: 125 CFM, 100 PSI Ingersoll-Rand Mod GER-125.

TM 5-4310-231-20P Jun Comp Recip 15 CFM; 3500 PSI Joy Mod 415HEP2.

TM 5-4320-220-15 Jul Pump, Cent, Barnes Mod 10-MG.

TM 5-5420-200-12 Jun Launcher, M48-A2 Tank Chassis Trans; Unit Rig Mod AVL 48A2, AVL B48A2.

TM 5-6115-236-15 Jun Generator, 2 KW, DC, 12V; US Motors Mod 2 US-17421, US-18086.

TM 5-6115-240-15 Jun Generator, Diesel, Cummins Mod JS-6-G-45KW 400 Cy.

TM 5-6115-270-20P Jun Gen Set, 3 KW, AC, 120V, Hollingsworth Mod JHG-W3B.

TM 5-6115-291-20P Jun Gen Set, 60 KW, Lumen Mod 2207.

TM 5-6115-302-10 Jul Generator Set, 45KW, 400 Cy, Harnischfeger Mod 400A.

TM 9-1410-250-20P/2 Jun.

TM 9-1430-250-20P/3, -20P/4 Jun Herc.

TM 9-1440-250-20P/1 Jun Herc.

TM 9-1450-250-20P/2 Jun Herc.

TM 9-2330-207-14 Jun Semitrailer: 12 Ton, M126, M126A1, M126A1C, M127, M127A1, M127A1C, M128A1, M128A1C, M129A1 & M129A1C.

TM 9-2330-246-14 Jun Semitrailer, Van: Electronic, M348A1, M348A2C, M-348A2D, M348A2F.

TM 10-3930-218-25P Jun Crane Attach, Truck-Mtd Hyd Winch 5500 Lb Load Cap, Gar Wood Ind Mod SKN.

TM 10-3930-407-10 Jul Tractor, Wheeled, Minneapolis-Moline Mod MT 40, Army Mod MHE 172.

TM 10-500-16-1 Jun Air Del M274, ½ Ton, Inf Car on Skdbd.

TM 11-5805-298-12P Jul Gen, Ringing, TA 248/TT & 248A.

TM 11-5830-221-20P Jul Intercommunication Station LS-147A/FI, LS-147B/FI, LS-147C/FI & LS-147D/FI.

TM 11-5835-215-20 Jul Recorder-Reproducers RD-31C/U & RD-31D/U.

TM 11-5895-281-12P Jul AN/FSQ-34.

TM 11-5895-310-12P Jul Aircraft Propeller Synchrophaser.

TM 11-5965-250-12P Jul Microphone M-11/U.

TM 11-6130-223-12P Jul Power Supply PP-2982/U.

TM 11-6140-205-12 Jul Battery, Storage BB-433/A.

TM 11-6140-206-12 Jul Battery, Storage BB-434/A.

TM 11-6625-258-20P Jul Generators SG-299/U & SG-299A/U.

TM 11-6625-351-20P Jul Radio Interference Measuring Set AN/URM-85.

TM 11-6625-396-12 Jul Stroboscope TS-905C/U.

TM 11-6625-399-20P Jul Generator SG-298/U.

TM 11-6625-414-10 Jul Voltmeter TS-443/U.

TM 11-6665-207-20P Jul Teletypewriter Test Sets TS-1060/GG & TS-1060A/GG.

TM 11-6760-208-12P Jul Lens, Camera, Gen Photo LE-6(1).

TM 11-6940-205-20P Jul Trainers, Radar AN/ULT-T2, AN/ULT-T3, and AN/ULT-T4.

TM 55-6635-200-12 Jul Portable X-Ray (Mod 260 KVP).

LUBRICATION ORDERS

LO 5-3820-205-20/1-1, /1-2, /1-3 Jun Crusher, Roll: 75 Ton Per Hour Eagle Crusher Mod 5230B.

LO 5-3820-205-20/2-1, /2-2 Jun Crusher, Jaw: 75 Ton Per Hour Eagle Crusher Mod 5157.

LO 5-3825-213-20-2, -4 Jul Snow Removal Unit FWD Mod S-349-V.

LO 5-3895-218-20-1, -2, -3, Jun Paving Machine, Bit Mat, Barber-Greene Mod 879-B.

LO 5-3895-224-15 Jun Spreader, Aggregate: Gar Wood Mod M5-8 Ft.

LO 5-6115-303-15 Jun Generator, Diesel, 150 KW, Waukesha Mod 6-NKDBS-E U1.

LO 9-1055-212-12 Jun Launcher, 318-MM Rocket, XM34.

FORMS

AF Form 50-D Sep Reparable Tag.

DA Form 9-27 Jul Herc Daily Check Sheet—Acq Radar.

DA Form 9-28 Jul Herc Weekly Check Sheet—Acq Radar.

DA Form 9-29 Jul Herc Monthly Check Acq Radar.

DA Form 9-35 Jul Herc Weekly Check Sheet, Msl & Tar Tr Radar.

DA Form 9-36 Jul Herc Monthly Check Sheet, Msl & Tar Tr Radar.

DA Form 9-82 Jul Ajax Assy Area Check Sheet.

DA Form 9-83 Jul Ajax Assy Area Check Sheet, Initial Operations.

DA Form 9-84, -85 Jul Ajax Launching Area Check Sheet, Daily Checks.

DA Form 9-95 May Herc Daily Check Sheet; Msl & Tar Tr Radar.

DA Form 9-96 May Herc Weekly Check Sheet; Msl & Tar Tr Radar.

DA Form 9-192 Jun Check Procedures-HAWK.

MISCELLANEOUS

DA Cir 750-2 Jul Repl of Eng Parts Because of Mfg Defects.

MWO 5-4310-214-35/1 Jun Comp Air, Rot, Recip, 15 HP, 15 CFM, 3500 PSI, Davey Mod RPC-15.

MWO 5-6115-229-35/1 Jul Generator, Gasoline, 5KW, HOL-GAR Mod CE-55-AC/WK6.

MWO 5-6115-230-35/3 Jul Gen Set, Diesel, 60 KW, HOL-GAR Mod CE-600-AC/EG.

MWO 9-1410-250-20/2 Aug Replacement Herc GM, XM6E4, Thermal Battery Lanyard Assy.

MWO ORD Y3-W29 Jul Corp II M2 & M2A1: Waterproofing GM Electro-Pneumatic Servocylinders 8145238 & 8145255.

SB 38-100 Jul Pres Pkg, Mat, SOP, Used By Army.

SM 10-1-C6-5-SL, Vol 2, Jun Hand Tools, Nonedged, Nonpowered.

TB 9-296/57 Aug Calibration Procedure, Resist Decade Box TS-679/U.

TB 9-2320-218-20/1 Jun Truck, ¼-Ton, M151; Fording & Winterization Kits.

TB 385-2 Jul Nuclear Weapon Fire-Fighting Procedures.

TB AVN 7 Jul Painting & Marking A/C.

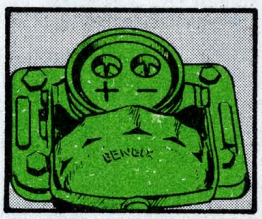
LUCKY LADY

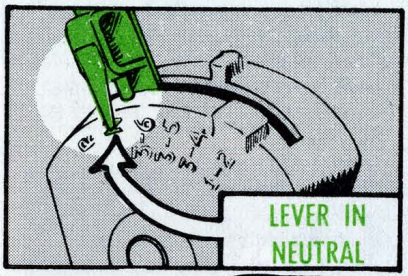
In PS 107 we gave you some dope on getting along with your Lucky Lady M113 APC under ordinary conditions. Now we're following through with info on taking care of the Lucky Lady under special conditions, and maintaining her so she'll purr like a pussy cat.

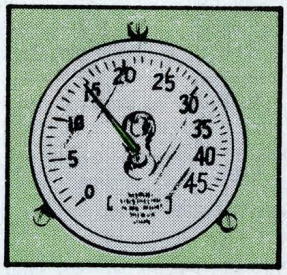
SLAVE STARTING

1. Position another M113 or any other vehicle with 24-volt current supply near the M113 to be slaved. Turn master switches in both vehicles OFF.

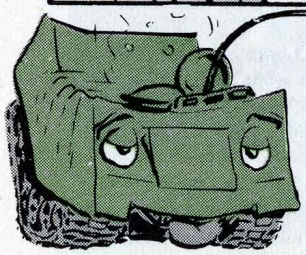
Connect a slave cable to the auxiliary power receptacle. Be sure you put the right prong in the right hole, the + prong in the + hole and the − prong in the − hole.



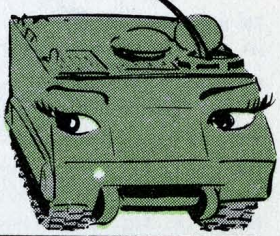




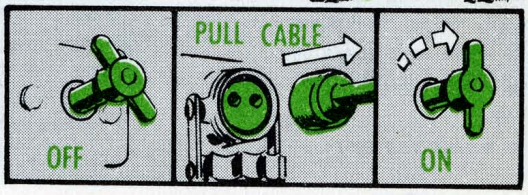
2. Turn ON the master switch in the LIVE vehicle and with the range selector switch in neutral and the brakes on, rev the engine to about 1500 RPM.



In the DEAD Lady, start the engine in the usual way, except you leave the master switch OFF. After the engine starts, quickly pull the slave cable and flip ON the master switch.



Pull the cable in the slaving Lady and run the engine in the slaved M113 APC at about 1500 RPM for five minutes or so to charge your batteries before moving out.



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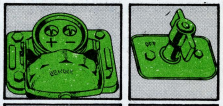

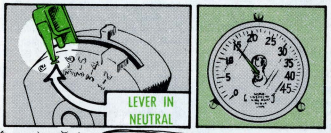

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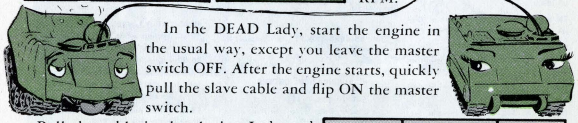

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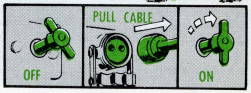
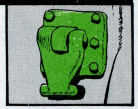
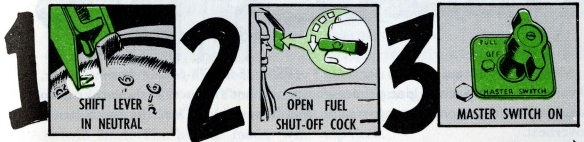


TOW AND PUSH STARTS

Never do this except in an extreme emergency. Use the tow hooks to connect two crossed tow cables or a tow bar between the two vehicles. On the vehicle you're trying to start, put the shift lever in NEUTRAL, open the fuel shutoff cock and turn the vehicle master switch ON.





MORE

PART 2 M113

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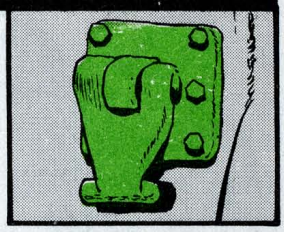

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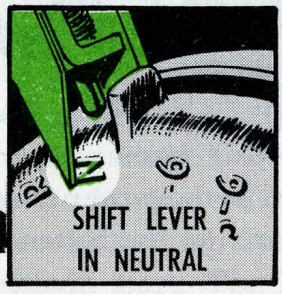

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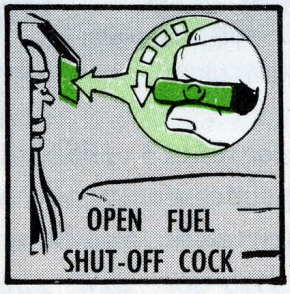

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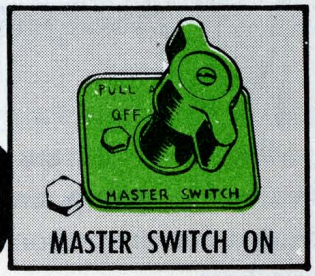
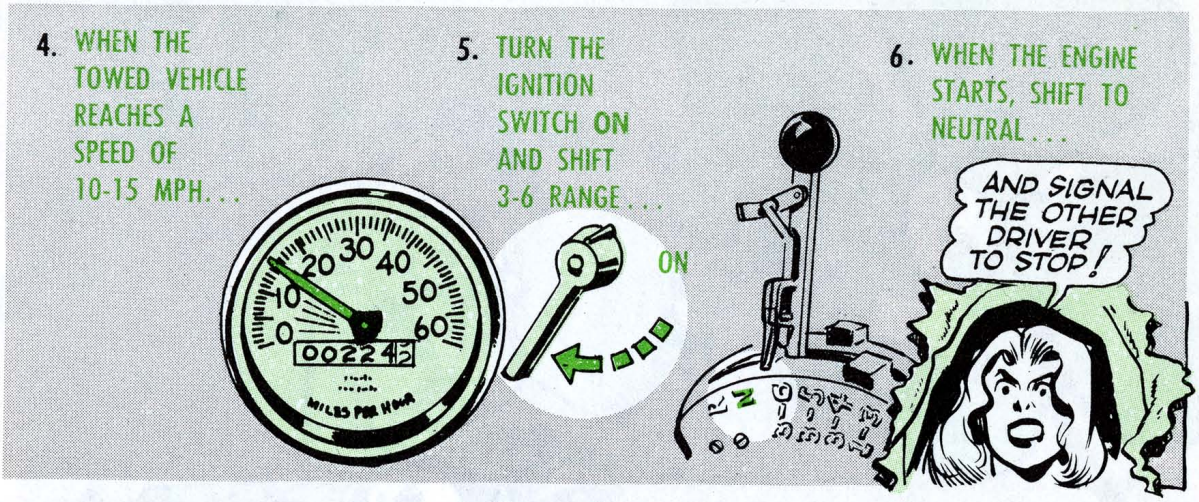


PS MORE

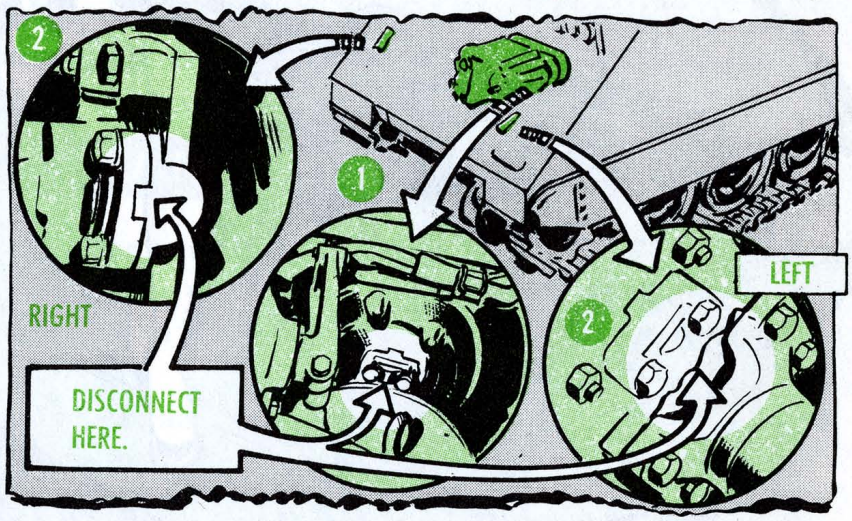


WATCH THIS:

If you're going to tow the vehicle more than 200 feet . . .

1. **First disconnect the universal joint between the transmission and differential.**

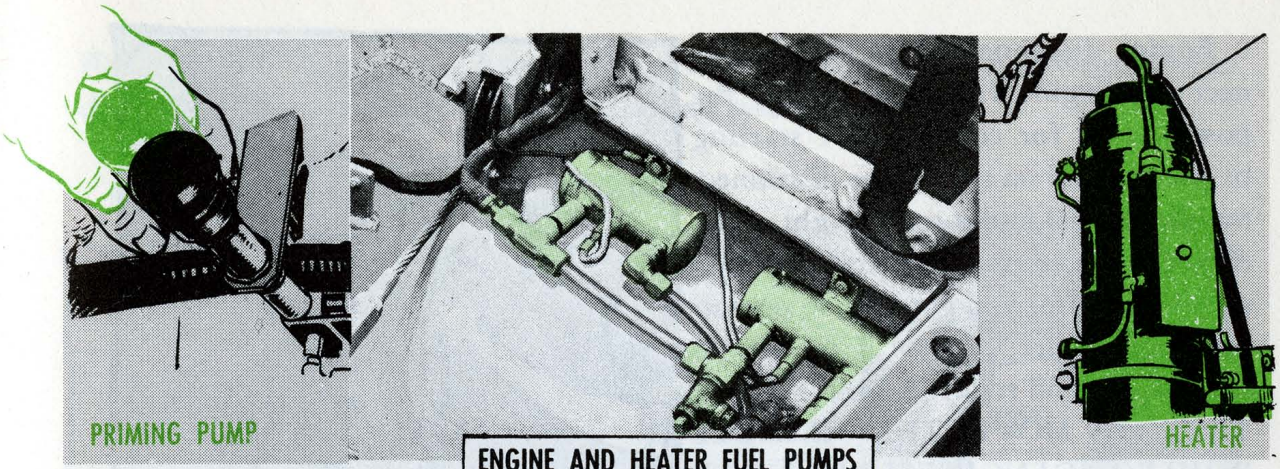
Don't exceed a vehicle speed of 20 MPH or a distance of 50 miles with the transmission disconnected.



2. **If you want to go further or faster, disconnect the left and right universal joints between the differential and final drives.**

WINTER OPERATION

The winterization kit for the M113 (FSN 2540-674-6094) has a heater, heater fuel pump, an engine primer pump, and hot air ducts to the power train compartment, personnel compartment, and battery box. Don't let the batteries overheat.



ENGINE AND HEATER FUEL PUMPS

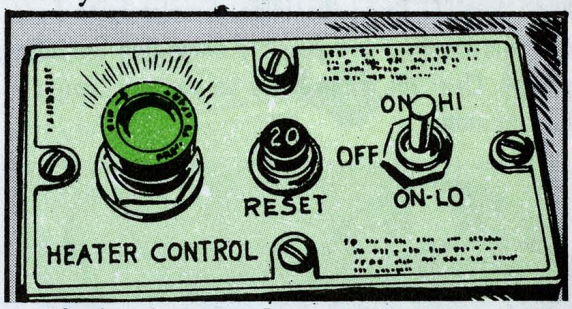
The hand operated priming pump is on the front wall of the driver's compartment. It pumps gasoline into the engine intake manifolds. Normally you won't need it because the engine will start without it in temperatures down to —25°F. Don't overprime—Prime only when engine is turning over to prevent hydrostatic lock.

HEATER

The heater is in the personnel compartment on the power plant compartment wall. You use it to warm the power plant and batteries before starting in extreme cold. It is also a personnel heater. You control the heater output to the battery box with a valve in the duct of the box. You can switch the main output of the heater to the personnel area or the power plant compartment.

Make sure the power plant compartment heater intake is CLOSED when the engine is running with the heater OFF. If the intake is open, engine fumes could get into the personnel area.

To start the heater, flip the three-way control switch to ON·LO. The indicator should light up and the blower motor should start. The blower motor will speed up after the heater ignites and then you can switch to ON-HI.



If the heater doesn't ignite within three minutes, switch it off. Press on the indicator light. If it glows, you are getting current, so you can try to start the heater again. Wait five minutes for the igniter to cool. Otherwise, you might burn out the starting coil.

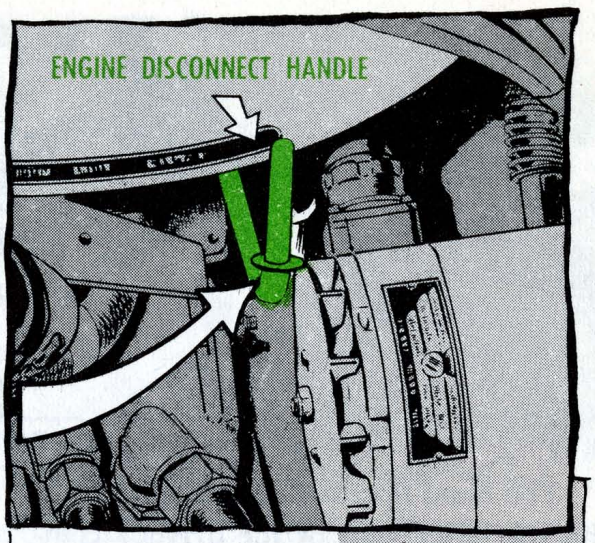
If the heater won't start in three tries, don't try again until you find out what's wrong.

When you turn the heater OFF, the blower will go on running for a couple minutes to purge the burner. Don't turn the vehicle master switch OFF until the heater has purged itself and stopped running, except in an extreme emergency.

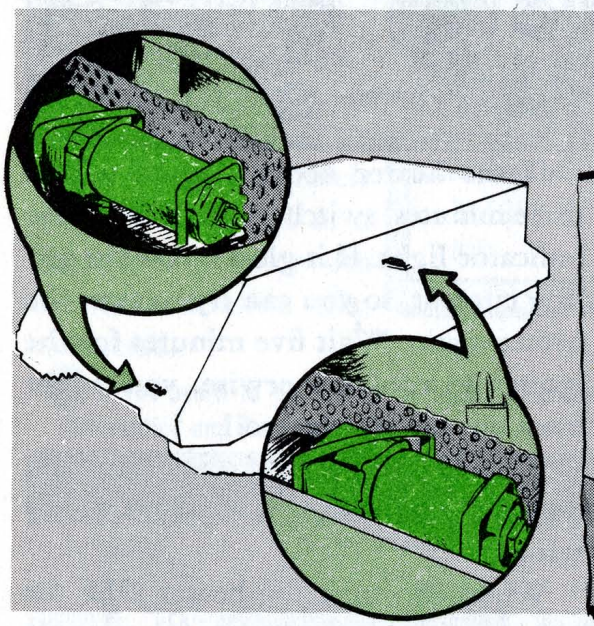
There is no chance of the engine exhaust gas backing up through the heater line because the heater has its own separate exhaust through an outlet on the top deck.

PS MORE

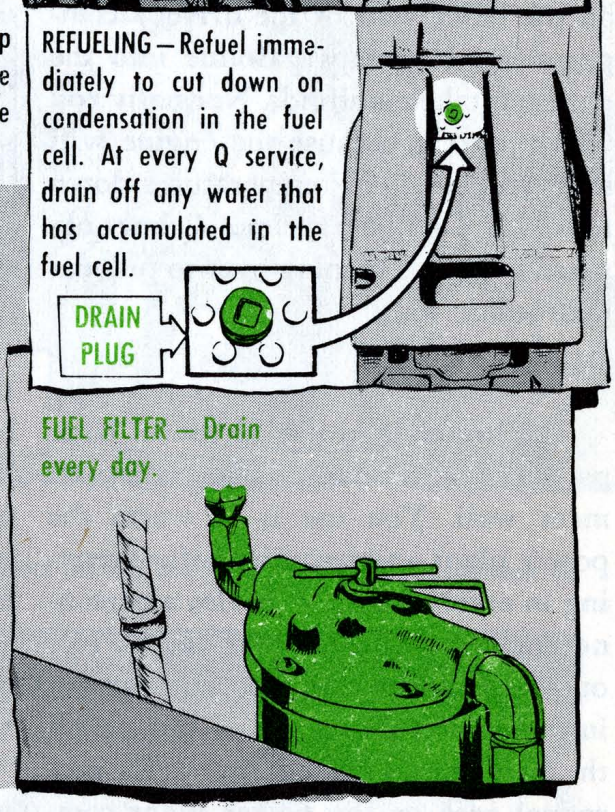
Engine disconnect—You can disconnect the engine from the rest of the power train for cold-weather starting by pushing IN on the engine disconnect handle. You'll find it to the right of the driver in the engine compartment. Stop the engine after you get it up to operating temperature, pull OUT on disconnect handle and restart engine. NEVER TRY TO MOVE THIS HANDLE WHILE THE ENGINE IS RUNNING.



BILGE PUMPS—Drain the bilge completely to keep ice from forming and possibly damaging the bilge pumps. Clear the drain holes so you get complete hull drainage.



REFUELING—Refuel immediately to cut down on condensation in the fuel cell. At every Q service, drain off any water that has accumulated in the fuel cell.



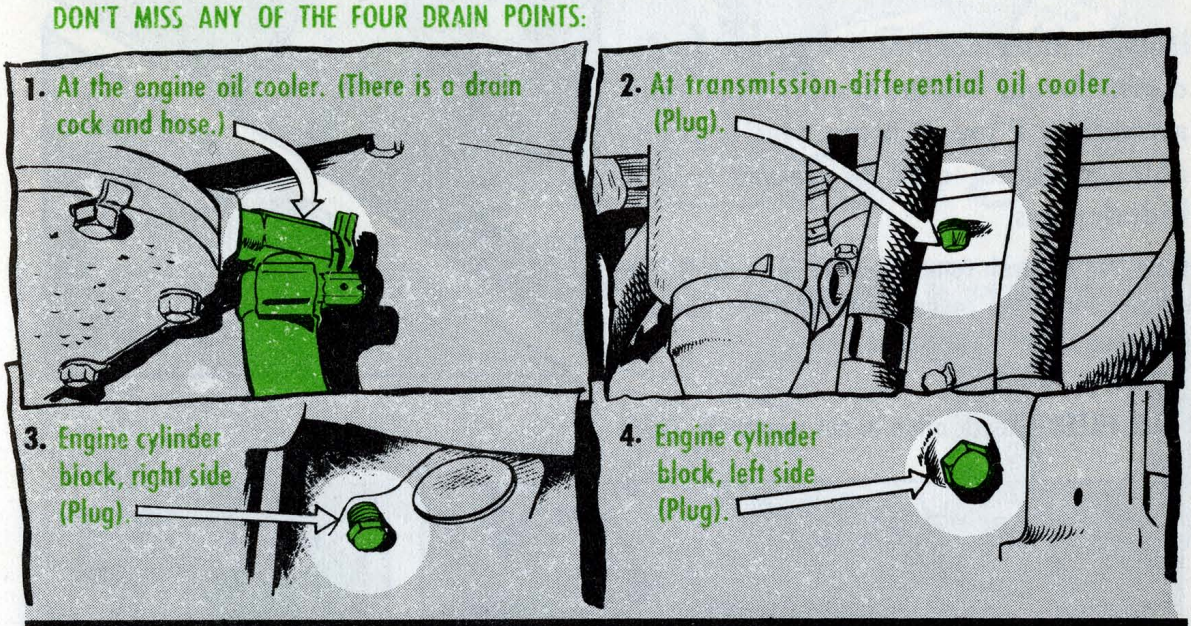
ARMAMENT—Cover weapons when not in use. Breech and firing mechanisms should be lightly lubed. Use your rifle bore cleaner straight. Don't dilute it or add an antifreeze.

SNOW AND ICE—On ice, skidding is the problem. Pick the highest range that will move the vehicle steadily without straining the engine.

Under these conditions you'll get better traction if you take off your track pads. First you have to get your CO's permission—natch.

VEHICLE STORAGE—If you have to store your vehicle under extreme cold weather conditions, completely drain the engine cooling system.

DON'T MISS ANY OF THE FOUR DRAIN POINTS:



HOT WEATHER TIPS

BATTERIES—Check battery level EVERY DAY in hot zones. Use distilled water whenever available. If you can't get distilled water, use rain or drinking water. Batteries must have a weaker electrolyte in hot climates, so have your support unit dilute the issued sulphuric acid (specific gravity 1.280) to a specific gravity that'll meet your climatic conditions.

You can get all the dope on this in TM 9-6140-200-15 (July 58) which also gives you a corrected hydrometer chart.

Batteries self-discharge fast at high temperatures, so if you gotta park for a couple days, take out the batteries and store 'em in a cool place.

COOLING SYSTEM—Needs extra attention in hot weather. Check level frequently. Use corrosion inhibitor and refill with soft water if possible. Flush radiator when you need to, but if it has to be cleaned let your support unit do the work. There are some aluminum parts in the coolant system that can't take ordinary cleaner but your Ordnance Support has the right stuff to use.

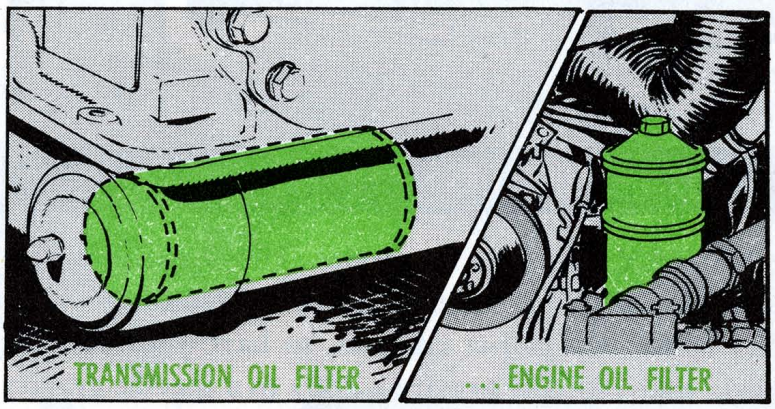
PS MORE

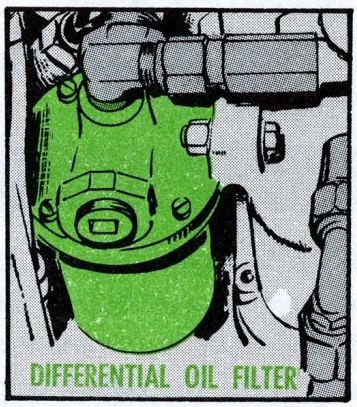
ARMAMENT—In dry, dusty or sandy areas, leave exposed surfaces such as the recoil slides dry instead of oiled because sand and lube make a grinding paste that does more harm than dry operation.

ENGINE—Under normal operating conditions, if your engine temperature rises above 200°F pretty often, you've probably got sand, dust or insects in the radiator fins.

Blow 'em out with compressed air. Also check belt adjustment of the cooling fan and make sure it's operating right.

OIL FILTERS—Check often in hot weather. CHECK . . .



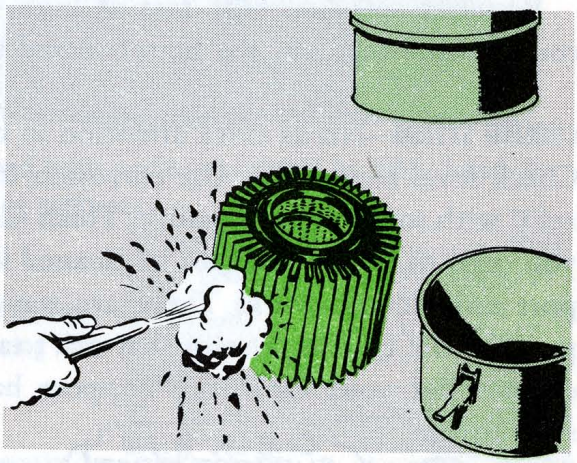


AIR CLEANER

Service daily when operating in dust and sand. Directions are on the cleaner can.

You never use gasoline or other solvents to clean the cartridge, but you can use almost anything else.

Best bet is blowing it out with compressed air at or not over 10 PSI. You can wash it with soap and water. Rinse in clear water and be sure it's thoroughly dry before you put it back.



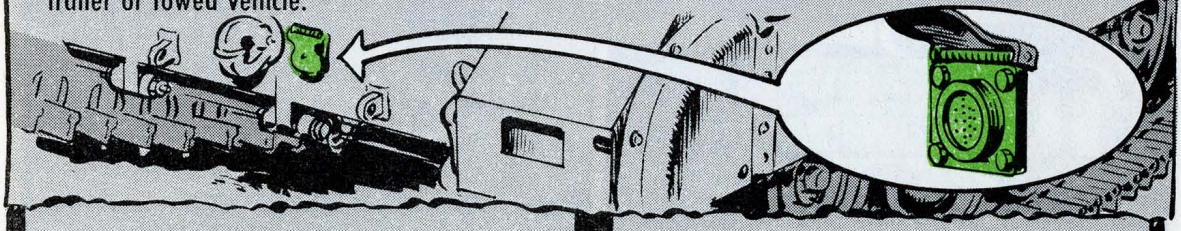
In an emergency you can clean it by **gently** tapping the fins with your hand. Don't tap the ends of the cartridge to clean it because that could really damage the element.

ELECTRICAL RECEPTACLES

FOR 110-VOLT CURRENT—A male inlet receptacle is installed in the back of the vehicle near the right tail light. It leads to a female outlet inside the vehicle.

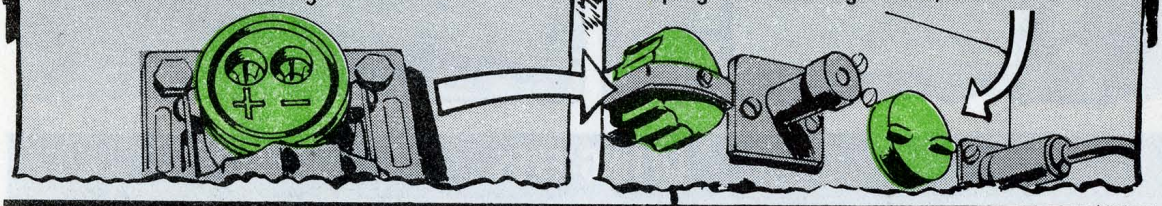
FOR 24-VOLT CURRENT—There are three receptacles:

1. Trailer lighting receptacle near rear towing pintle. Supplies electrical power to run the lights of a trailer or towed vehicle.

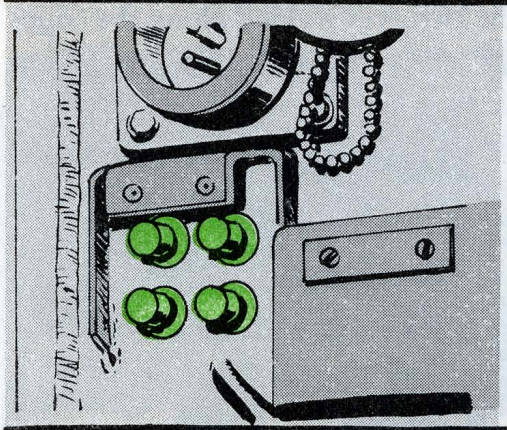


2. Auxiliary power receptacle on inner wall near driver's hatch. Used to receive or send out current in slaving.

3. Accessory outlet receptacle on same housing as auxiliary power receptacle. Used to plug in trouble light cord, etc.



TELEPOSTS



There are four teleposts on the inside rear right wall near the portable fire extinguisher. In fact, they are just below the 110-volt current receptacle, both inside and outside the vehicle.

They are for internal to external telephone hookups. When they're not being used, the external ends of the teleposts are weather-shielded with a rubber cover.

COMMUNICATIONS EQUIPMENT

You may get any one of several types of radio sets. A mounting rack for the radios is on the left wall of the personnel compartment.

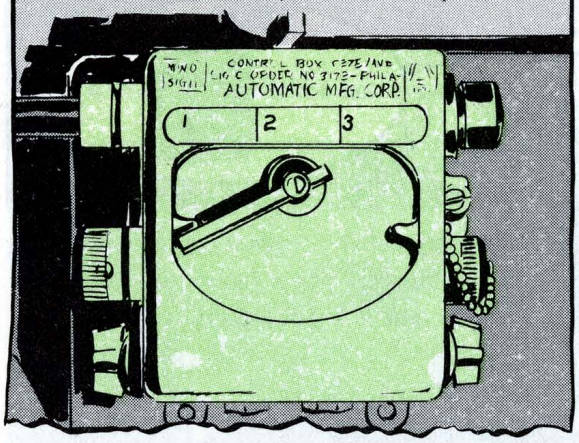
P.S. MORE

Some radio combinations will require an additional rack for the right side of the vehicle. This rack will be supplied by the Signal Corps with the radios.

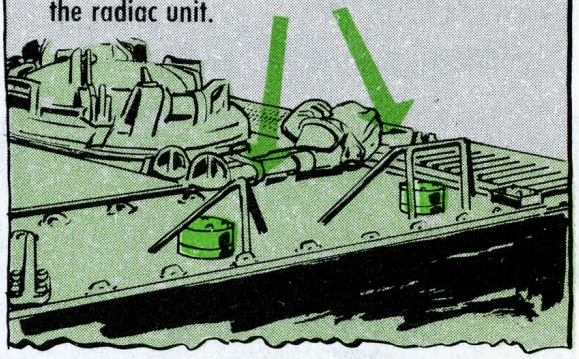
Power for the equipment comes from two radio receptacles built into the mounting rack. Cap the receptacles when not in use.

Lugs are welded to wall and ceiling on the RIGHT side, for another radio rack if needed.

INTERCOM BOX—A bracket for mounting an intercom box is welded to the air vent duct at the front of the personnel compartment.

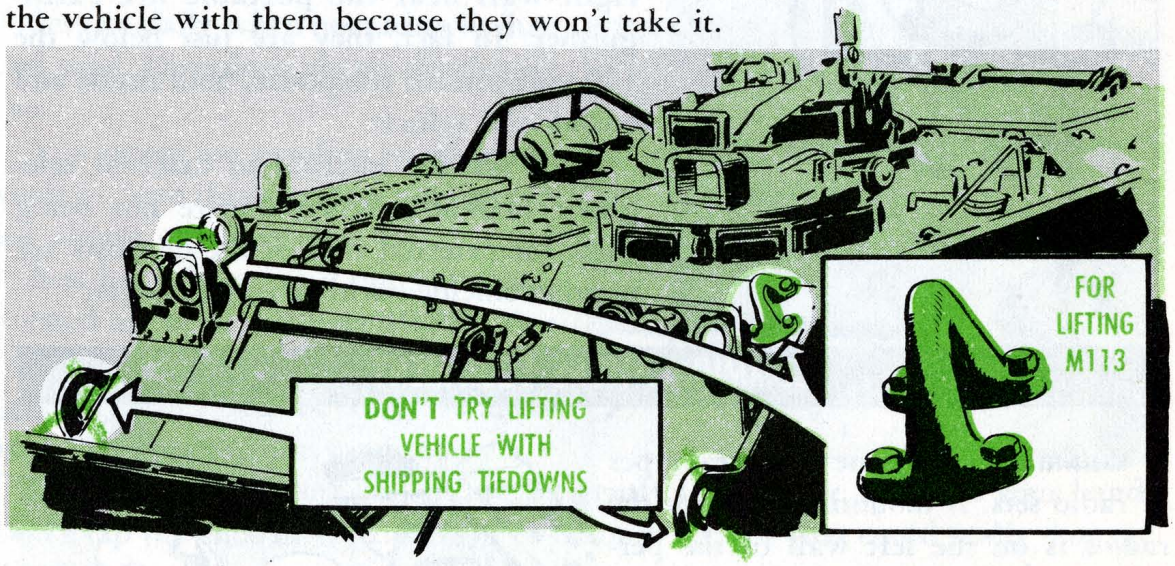


ANTENNA MOUNTS – There are four, two on each side of the top deck. When not in use they're covered with bolted coverplates. Antenna guards welded near each mount protect the antennas. The forward right mount is for the radiac unit.



LIFTING EYES

The M113 has four lifting eyes, one near each corner of the vehicle. Use them for lifting and for tying air drop parachutes. The two eyes welded along the edges of the vehicle below the front headlights are shipping tiedowns. Don't try lifting the vehicle with them because they won't take it.



ARMAMENT

Pintle mounted .50 caliber M2 machine gun. Shoots in any direction. Half of the authorized 2,000 rounds of ammo is carried under personnel seats. The rest is stowed wherever the crew wants it.

Spare barrel is stowed on the left sponson beside the driver.

Gun parts and tools are in a roll attached to right wall of the personnel compartment.

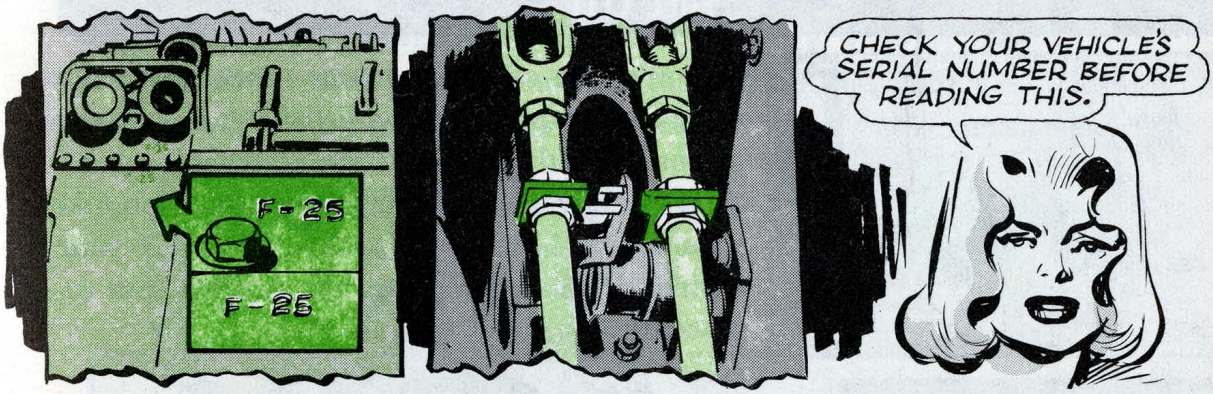
Two M14 rifles are stowed on the sponson with 360 rounds of 7.62-mm ammo.

FIRE EXTINGUISHERS

One fixed five-pound cylinder is on the left wall near the driver's seat. It discharges CO_2 into the power plant compartment. Pull either the actuating handle at the cylinder itself, or the handle outside the vehicle, near the driver's hatch. Remove and weigh every Q maintenance or any time you find the seals broken. Always enter the date of last filling on the green tag.

One portable five-pound cylinder is in the right, rear, corner of the personnel compartment. Check green tag for filling date.

STOP LIGHT WASHERS



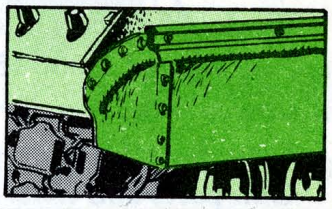
If your vehicle is serial number F483 or above, you can skip this. On vehicles F482 and below, the stop light switch actuator washers may work loose and interfere with the steering and braking control rods.

It's a good idea to draw the lock nuts up tight and weld them to the washers. On vehicles F483 and above, your control rod and actuator washer are all in one piece.

PS MORE

SHROUD COVERS

Your front shroud covers can get bent on small trees in wooded areas. When they get bent they crack around the attaching bolts. Maybe something will be worked out on this, but for now, take it easy in the woods.



OIL DRAIN PLUGS

The oil drain plugs sometimes freeze in place. Work a light coat of GAA into the threads.

LOADING TIP

In loading the M113 on a plane or railway flat car, you may have trouble with the front of your vehicle rubbing against the entry ramp. If you do, block it up.

EXHAUST

If the commander has his head outside the hatch in a cross wind he may get a lungful of exhaust gas from time to time . . . so be watchful in cross winds. Some units have been turning the exhaust around to face the front. They claim that keeps some of the smoke out of the commander's face. It all depends on where the wind's coming from.

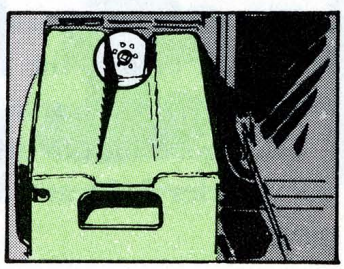
FUEL CELL

Don't take off the manhole cover unless the fuel cell is empty. Otherwise you'll puncture the cell or break the manhole cover latches.

The fuel cell drain plug is an alloy job and some outfits have been breaking them. If your Ordnance officer gives you the nod you can replace them with ½-in brass plugs.

TRANSMISSION OIL

In the LO it says when you change the transmission oil it takes 19 quarts. The transmission's actual capacity is 9½ quarts.



QUICK DISCONNECT LINES

Your engine oil quick disconnect lines can cause you trouble unless you engage them **completely**. Could happen that you'll get what looks like a tight connection without it being completely engaged. When this happens the oil line is blocked and the oil can't flow through the coolers. So, when hooking up the quick disconnect line—see that the connection is complete, not just halfway.

IDLER WHEELS, ROAD WHEELS AND IDLER ARM HUBS

You gotta be a mite careful to get the adjusting nut right on your road wheel and idler arm hubs. On account of the seal is spring loaded, you gotta have the nut just so to keep oil from leaking at the seal. Always follow the method given on page 107 of TM 2300-204-20 (Mar 60).

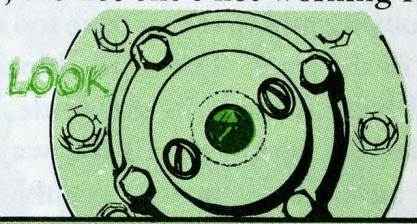
If you see the road and idler wheels' rubber coming loose, or the rubber chunking off—do this:

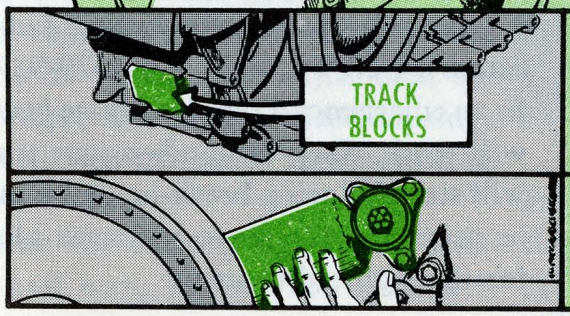
1. Keep the right track tension at all times.
2. Avoid high speed turns.
3. Interchange road wheels and/or idler wheels to get equalized wear.
4. If wheels look too bad let your 3rd echelon support people know about it.

DAILY CHECKS

Do this daily check right and you can stop a lot of trouble before it happens. Make your own list, but it should include . . .

WHEELS AND DRIVES — Cautiously hand-feel road wheel and idler wheel hubs and final drives. If one is a lot hotter than the others, the hot one's not working right. Check oil levels at the sight indicators.





TRACK BLOCKS—Replace track pads that have 1/3 or more of the rubber pad missing. Check also for worn or broken guides, worn bushings and damaged links.

SHOCK ABSORBERS—Should be warmer than the hull if they're working.

MORE

TRACK TENSION

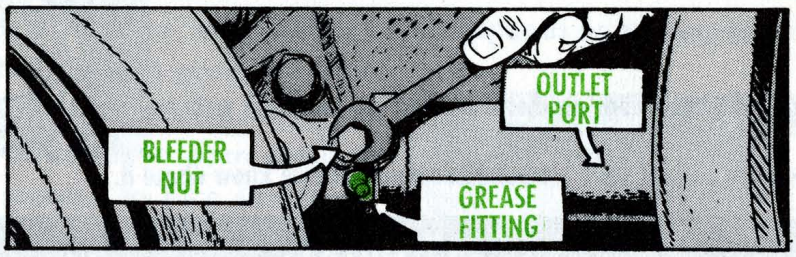
Try to check with vehicle on a level, smooth, surface. Don't apply brakes. Shift into neutral and let the vehicle roll to a stop. You don't have to take off the shrouds to check. If track tension is right, the bottom edge of the lowest track block will be within 1/16 to 1/4-in off the top of the center road wheel.

If you want to get the most life out of your track and idler wheels you **must** keep the track tension right. If it's too loose you could lose a track; if it's too tight you'll soak up power and do other damage.

Your lucky lady is equipped with a grease pressure adjuster. Be sure you have the right kind of a grease gun for this adjuster. It should be Part MS-35141-1, a high pressure lever operated 15-oz gun and it should be in the tool bag of your OEM. The gun is FSN 4930-223-3391.

You need this high pressure type to adjust your track tension. Keep it full of grease so you can make this adjustment out in the field.

To make the track looser, loosen up the track adjuster bleeder nut until the grease begins to ooze out around the threads. Don't take it off entirely or you'll get a facefull of grease.
On the left side of the vehicle the bleeder nut is above the grease fitting. On the right side it is below.



To tighten up the track, use your high pressure gun to force more grease in.

If grease squirts out the pinhole-size outlet port on your adjuster, it is a sign that the piston has traveled too far in the housing and that you have too much slack in the track. Take out a block and you'll have it made in the shade. That will let the piston go all the way forward again and you will get the right track tension.

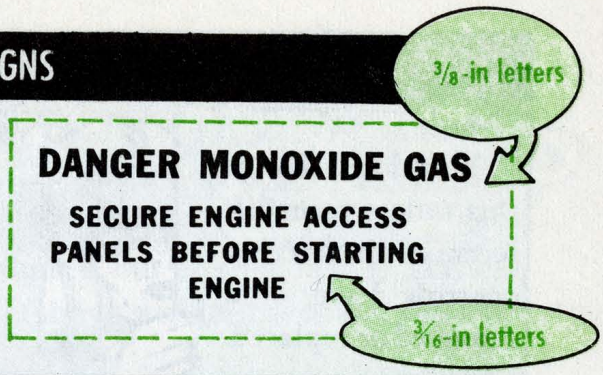
Remember, when the grease squirts out that hole it is time to drop a block.

The lube fitting for adjusting track tension does not have a cover, so be sure you don't use a grease gun on it when doing lube service. There should be a warning to lay off this fitting at lube services.

The elbow-type safety-lock grease fitting is a special item but you can get it from supply. Ask for Fitting Lubrication 1/8 NPTF, FSN 4730-679-9279. In an emergency a regular grease fitting will work. Keep in mind—a new track will stretch during break-in, and it may be necessary to remove one track block for the right adjustment.

WARNING SIGNS

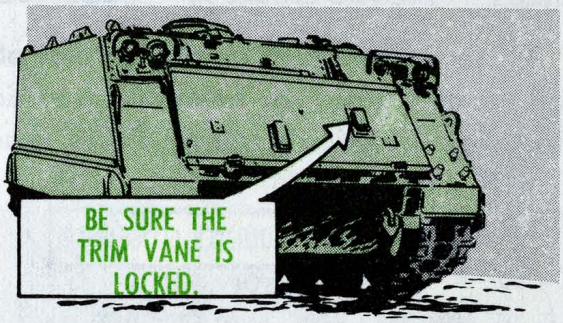
TB 9-2300-240-10 (Dec 60) gave the word to stencil this warning above the engine rear bulkhead access cover and engine compartment cover:

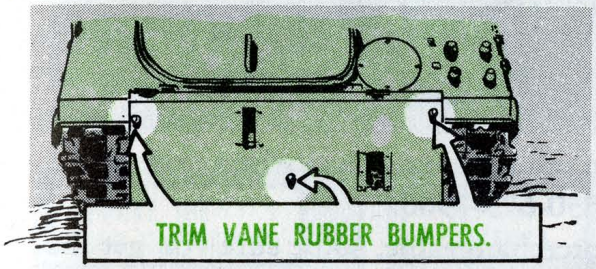


TRIM VANE

Be sure the trim vane is locked before you try using it as a hand hold for climbing up. Otherwise, you're pretty sure to fall on your face and you might get hurt bad.

When you lower the trim vane for any maintenance, the rubber bumpers





stick out and are easily damaged if stepped on or hit against anything. To keep from losing or doing any damage to the bumpers—be watchful around them.

BRAKE BANDS

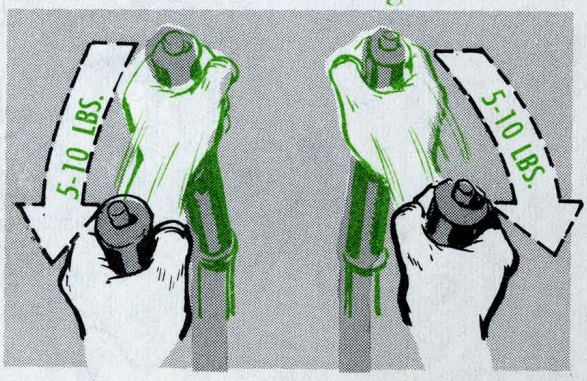
It should take a 5 to 10-lb pull to get the steering levers from full forward to the first notch in the steering lever quadrant. In this position the brake bands should be just starting to tighten on the brake drums.

To adjust, park vehicle on level ground, chock front and rear on both tracks and release both steering levers.

Unscrew your brake adjustment access plugs from the differential housing.

To tighten the band, turn adjusting nut clockwise.

Check the steering level pull after each half turn. Tighten 'till it takes 5 to 10-lb pull for the first notch of the quadrant. **Do not overtighten.**



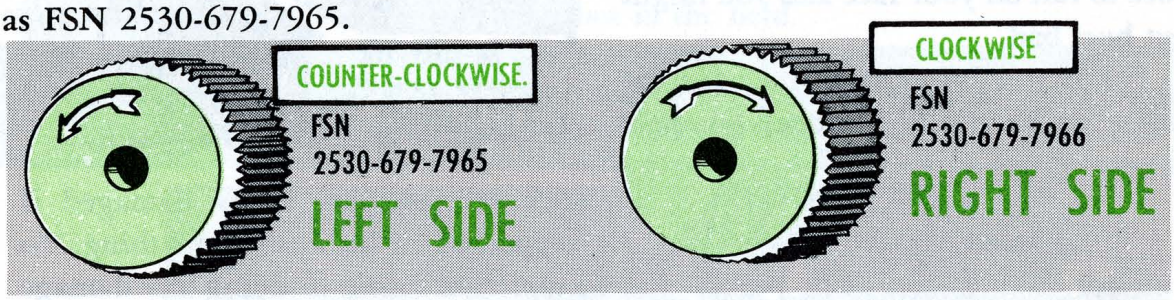
Always adjust brakes when the differential is cold. If you adjust with the differential hot after operation, your results will be off.

P.S. MORE

STEERING LINKAGE

TORSION BARS

All the torsion bars on the left side of the vehicle (as viewed from the ramp end facing toward the front of the vehicle) have an arrow pointing in a counter-clockwise direction stamped on the roadwheel end of the bar. You order them as FSN 2530-679-7965.

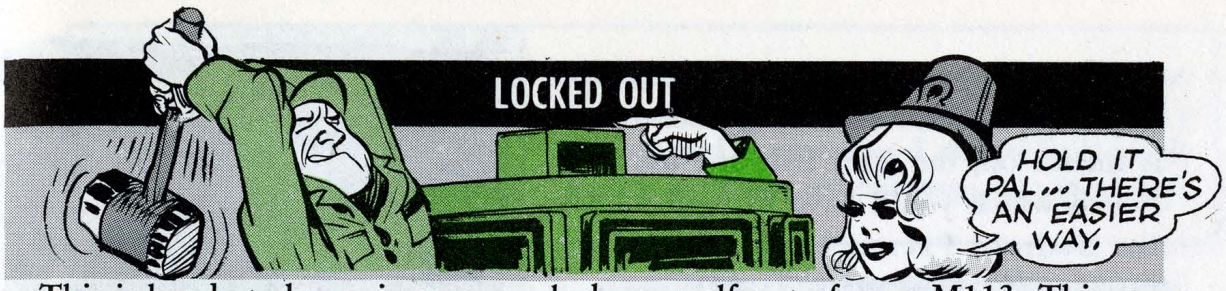


The torsion bars for the right side of the vehicle have a clockwise arrow on the roadwheel end and are stocked as FSN 2530-679-7966.

The two kinds of torsion bars are not interchangeable, so be sure you get the right kind.

WELDING CAUTION

The M113 hull is made with a couple different kinds of aluminum alloy and you can't weld it without using the shielded gas method. Leave it to the outfit that has the tools, equipment and a trained welder.

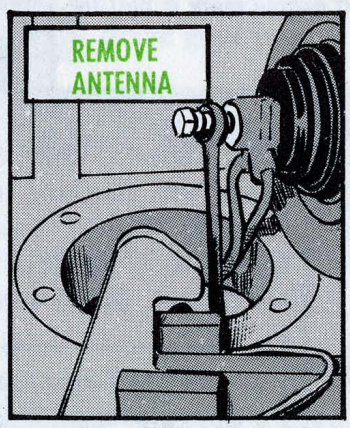


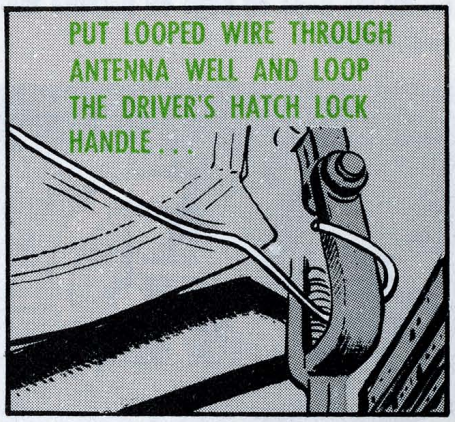
This is handy to know in case you lock yourself out of your M113. This can happen very easy if you do the wrong thing. Like you are the driver and you have your hatch locked from the inside.

You are the last one out and you come out through the commander's hatch which locks automatically when it closes behind you.

This is how you burgle your way in . . . first take off the four 9/16-in cap screws which hold the left antenna base. This antenna is to the left rear of the driver's hatch.

Then take out the antenna and use your burglar tool—a stiff wire with a loop at one end. (You can make it from a wire coat hanger.) Catch the driver's hatch lock handle in the loop and unlock the hatch.



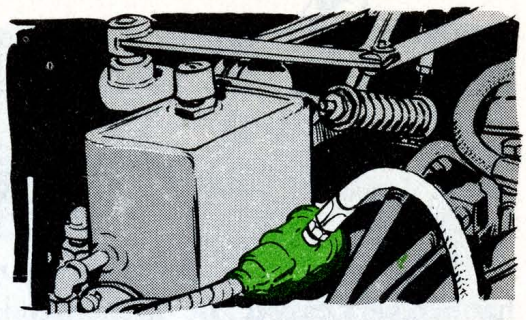


GENERAL TIPS

Here are some tips for the second echelon mechanic. . . . When you turn your ignition switch to ON, the fuel pump shouldn't operate —aside from a couple of clicks, that is. The fuel pump shouldn't operate until the starter is engaged.

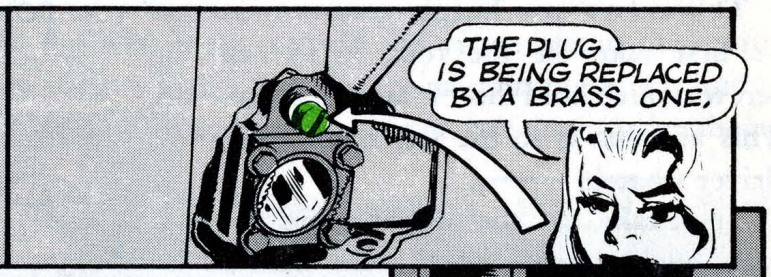
PS MORE

If the fuel pump gets ahead of itself and starts to work as soon as the ignition switch is turned on, the fault is in the interlock switch which you'll have to replace. Ask for Switch, Pressure: fuel interlock (10874979) FSN 5930-771-8119.

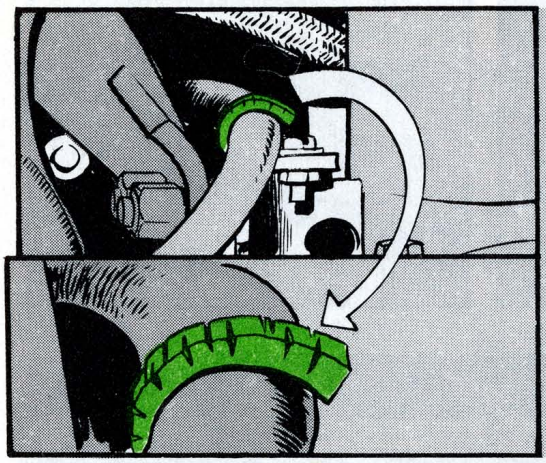


FAN DRIVE GEAR BOX—The filler plug in your fan drive gear box, at least on the early production models, is a soft alloy aluminum job and it gets frozen to the magnesium housing.

Some outfits are relacing it with a brass filler plug which is ordered out as Plug, pipe, brass, 3/8 NPT18 outside hex-hd NPT, FSN 4730-011-5711.



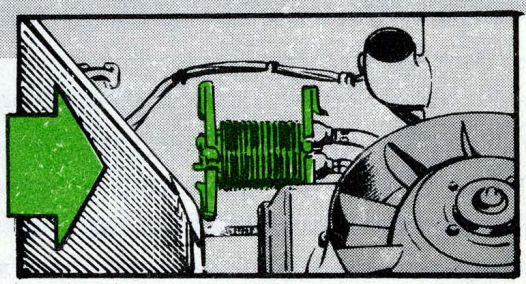
TIMING MARKS—TM 9-2300-224-20 (Mar 60) gives two different figures for the correct engine timing mark. On page 2 it says 16 deg BTDC but page 69 says to line up your vibration damper with the 10 degree mark on the timing plate.
Go by the dope on page 69 because the 10 degree mark is best for your engine.

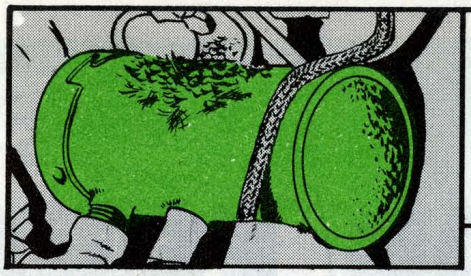


CLAMP CUSHIONS—Some outfits report they are having trouble with the Clamp loop: S, fuel resistant cushion, FSN 5440-200-8027. There are about 5 dozen of these little jewels in the M113. If you find the rubber cracks and falls out, send in a UER.

TRANSFER CASE—The late production models will have a dipstick on the transfer case. At half-full or above you are OK. Don't let it fall below the half mark.

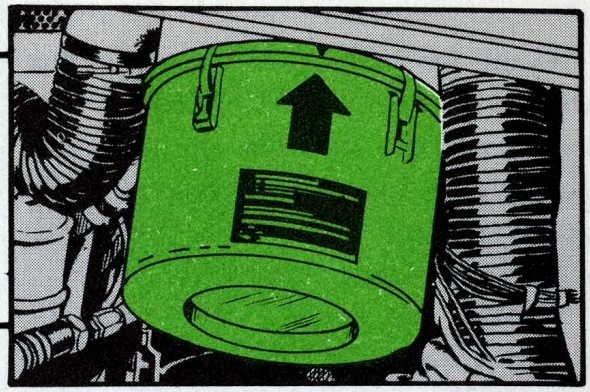
RECTIFIER—Your batteries have got to be installed right. If you get the wrong polarity it'll burn out your rectifier. With no rectifier your vehicle won't go any place except on the deadline. So watch it.

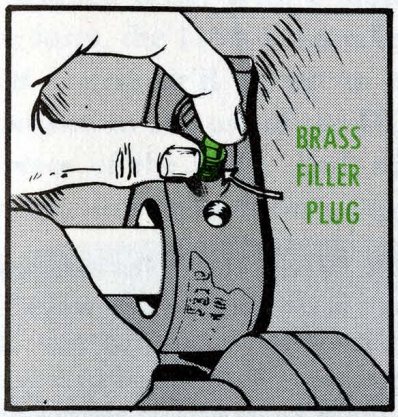




FUEL PUMP RUST—This is something easy to check and real important. If you have rust on your fuel pump, coat it with any good rust preventive. If you have the heater kit, o'course you'll have two fuel pumps—so coat 'em both.

ENGINE AIR CLEANER—If your engine backfires frequently, the four engine air cleaner pan latches get loosened. To keep your engine from backfiring, let it idle until it warms up or pull out the choke halfway. To clean the cleaner in the field, read the directions. Treat it gently.





STEERING SHAFT—There have been some reports that the differential steering shaft binds because the self-aligning plain bearing in the bearing bracket is not lubed. If you have this trouble, get permission from your support officer to drill and tap for a lube fitting.

After lubing, replace the fitting with a brass filler plug, the same kind used as a replacement in the fan drive gear box.

URGENT MWO

MWO 9-2300-224-20/1 (May 61) is to be applied on vehicles serial numbers through 931. Your organizational mechanic will replace the accelerator pedal shaft with a hard coated shaft. This should take care of the corrosion and binding problem on this part.

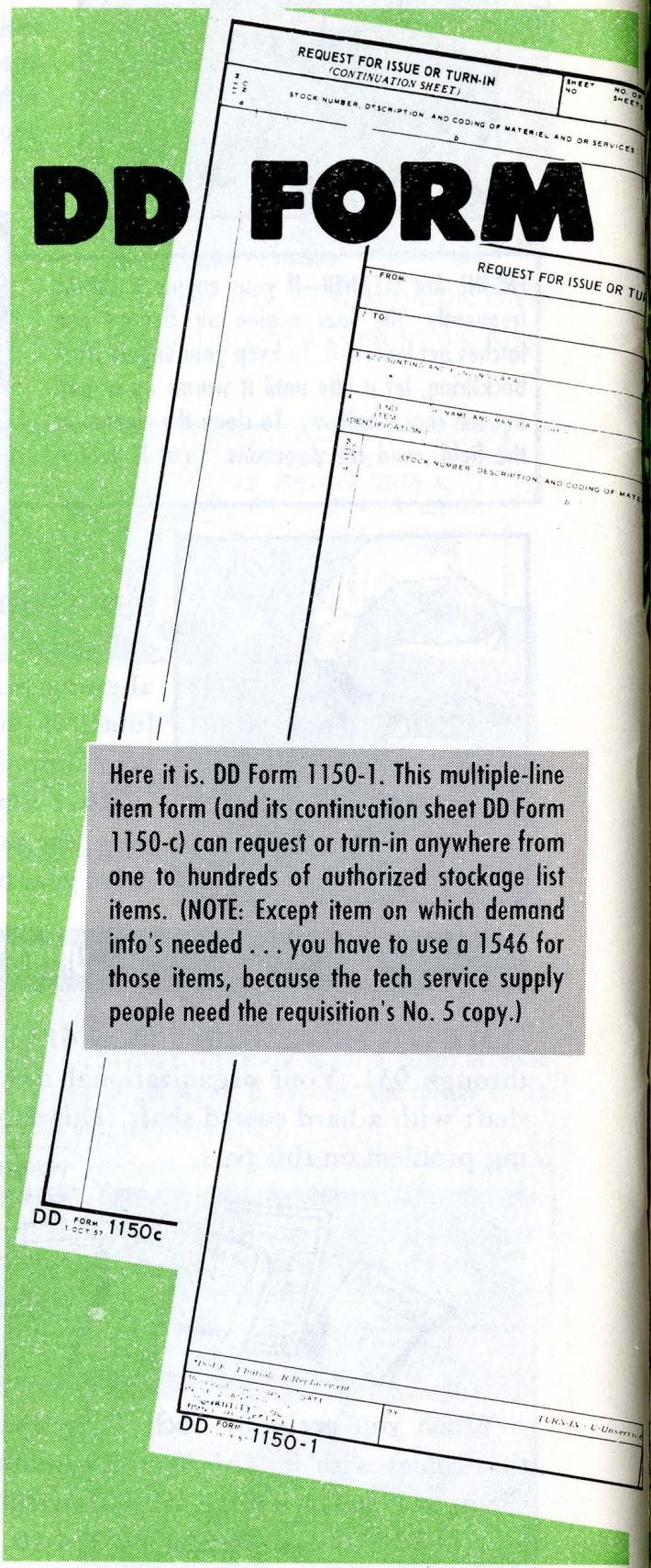
When you get your Lucky Lady, have a look-see through the pamphlet bag that comes with it. This should contain a copy of FM 23-65 (5 Dec 55) with Changes 1 and 2—on the .50 HB machine gun; a DA Form 478; the latest TM 9-2300-224-10 and LO 9-2300-224-10 and TM for the specific radio in your vehicle, also a Strapping Diagram Stowage OEM.

PS END

MULTIPLE-LINE ITEM SUPPLY FORM . . .

Could be you haven't yet met up with DD Form 1150-1, "Request For Issue Or Turn-In." The multiple-line item supply form's been around for a good spell, and some people like it real well for different supply errands.

Use of DD Form 1150-1 (and its continuation sheet DD Form 1150-c) was OK'd by AR 711-16 (25 May 60) "Installation Stock Control and Supply Procedures." And, you old-timers will find this form a lot like the old 446 and 447—multiple-line item issue and turn-in forms—which did your bidding before DA Form 1546 (the single-line item issue or turn-in form) hit the scene.



Here it is. DD Form 1150-1. This multiple-line item form (and its continuation sheet DD Form 1150-c) can request or turn-in anywhere from one to hundreds of authorized stockage list items. (NOTE: Except item on which demand info's needed . . . you have to use a 1546 for those items, because the tech service supply people need the requisition's No. 5 copy.)

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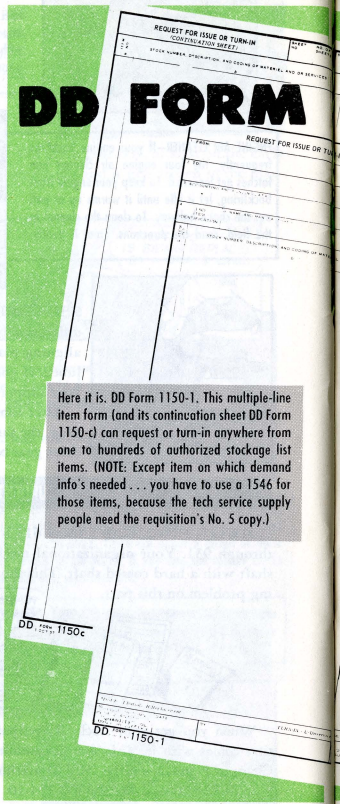

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HOW'S IT USED...?

When it's possible and easier for all concerned, and the items involved can be handled better with a multiple-line item form, the 1150-1 can take over.

Of course, it'll be up to the local command to OK use of the DD 1150-1 in place of the 1546. And, natch, the multiple-line item form's supposed to be used only for items on authorized stockage lists

The form's easy to fill out, too. Info and identification blocks on top of the form ask for the usual supply transaction info, and the same goes for the alphabetical columns across the form.

Blocks No. 1 and No. 2, for example, get the same info you put in blocks 1 and 2 of a 1546. The "From" (No. 1) block takes the name of your supply outfit, and the "To" (No. 2) block gets the name of your unit or shop.

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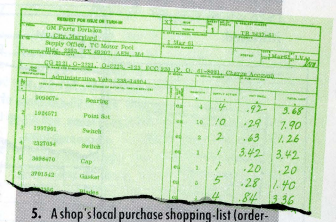
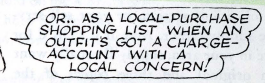
The form's OK, for example, for issue of expendable housekeeping items, stationery, office supplies (where there's no self-service center), for individual and organizational clothing and equipment, for TOE and TA equipment for a new unit, and for medical supplies (within a medical facility).

THE 1150-1 CAN ALSO BE USED FOR:

1. Issuing small, expendable, inexpensive non-critical items (except reparable air items) needed regularly at a shop or maintenance operation.
2. A hand receipt for tools and other items issued to individuals for temporary use.
3. Turning in stuff to property disposal.
4. Turning in excess serviceable items.



5. A shop's local purchase shopping-list (ordering and picking-up items from local commercial concerns). If the form's used this way one copy can be ear-marked to provide "demand" info for the items if purchased.



PS MORE

1150-1

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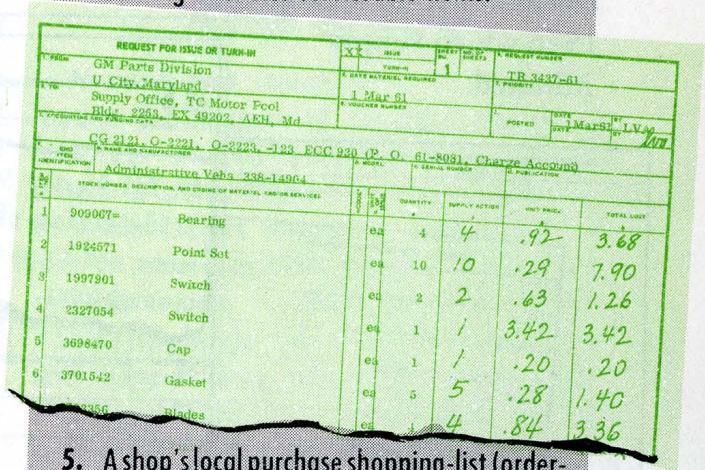

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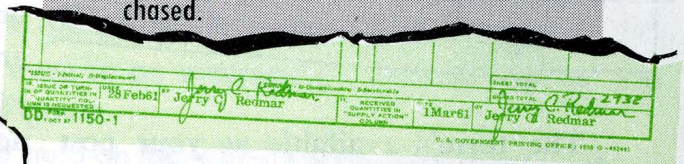
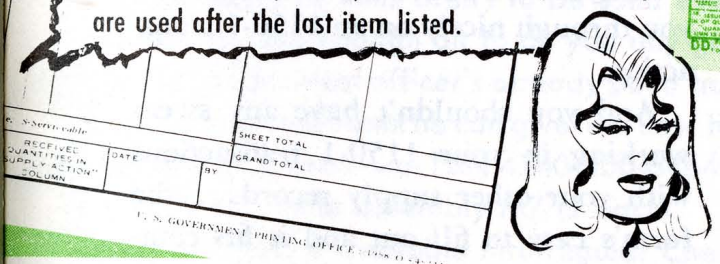




OR.. AS A LOCAL-PURCHASE SHOPPING LIST WHEN AN OUTFIT'S GOT A CHARGE-ACCOUNT WITH A LOCAL CONCERN!

PS MORE

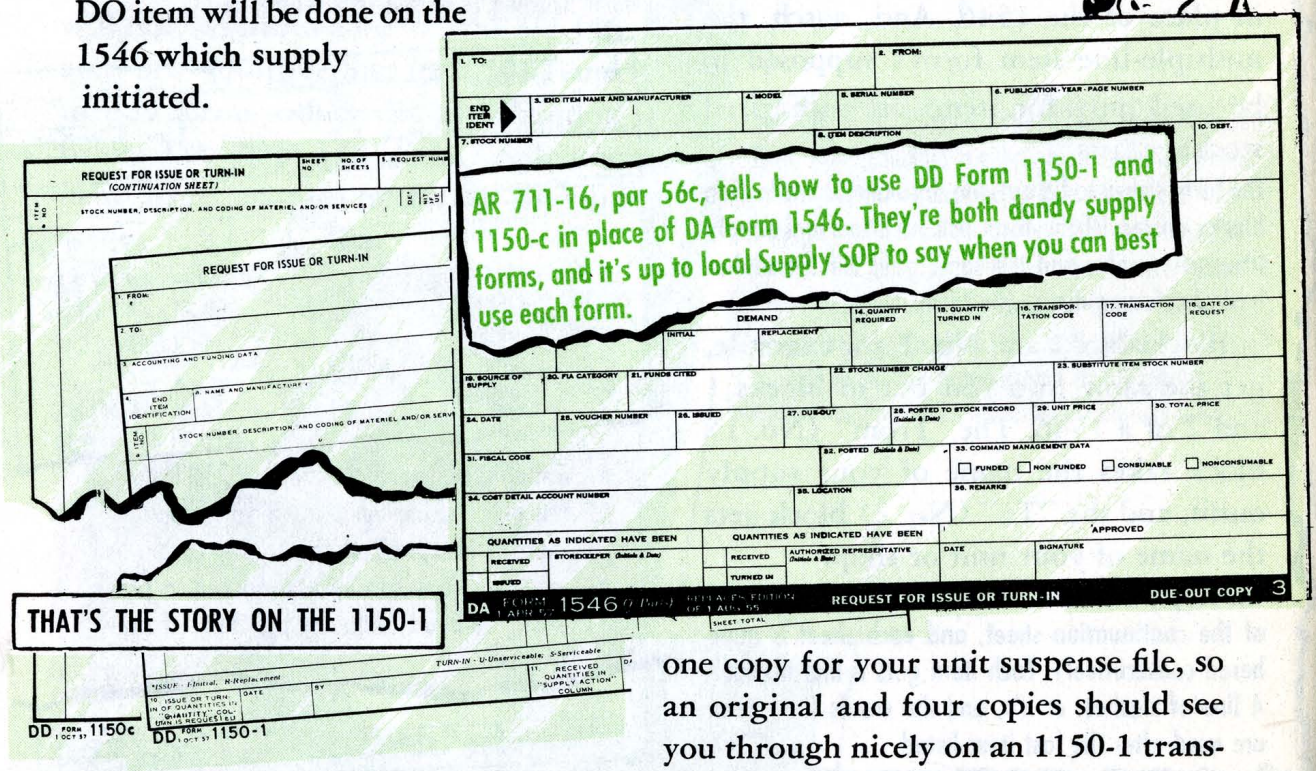
ITIU

DD Form 1150-1 can also be used to turn-in a unit's "Inventory Temporarily In Use" items. (ITIU items—non-expendable equipment which a unit gets for a special time or reason. The equipment—not on TOE or TA—remains the property of the installation, or depot, supply, and is not recorded in the unit's property book).

WHEN 1150-1 IS TABOO

You'll not be allowed to use DD Form 1150-1 when the tech service supply people want demand data on a specific item they're giving you. For that kind of record keeping business your supply support needs the demand data page, and the handy processing given on the 1546. Ditto for fringe items (as required items) you'll have to continue using the 1546.

Also when supply owes you a due-out on a 1150-1 order, they'll extract the due-out on a 1546 and send the No. 3, Due-Out copy to you along with your 1150-1 order. All further action on the DO item will be done on the 1546 which supply initiated.



The form's available at your post publications section, or your self-service supply center. And, if it's OK'd for use in your area, supply'll usually want an original and three copies of the form on each transaction. You'll need one copy for your unit suspense file, so an original and four copies should see you through nicely on an 1150-1 transaction.

And you shouldn't have any sweat working in your 1150-1 transactions with your other supply records. . . the form's easy to fill out and it fits comfortably into a manila folder.

Connie Rodd's BRIEFS

Those Ord UER's

If you've got a DA Form 468 (UER) all filled out and ready to send in on Ordnance equipment, be sure you use the right address from Change 6 to AR 700-38. You can also read all about it in PS Magazine 106. You don't send UER's in to the Chief of Ordnance now.

M60 computer cams

Your M60's M13A1D ballistics computer should have an ammo tab and cam for each type of ammo aboard. You'll need 'em to get the right reading like TM 9-2350-215-10 (14 Jun 60) tells you in step 1 of Fig. 63. Some early M60's had only one cam installed, so the selector handle was blocked off so 'twouldn't work. But when you've got more'n one cam, the selector handle is mounted on the computer and should be used like the TM says.

DD 1149 for AF70's

Army aircraft outfits needing Air Force publications or blank forms that are **not** listed in **Army** indexes can now order 'em. Just ask your local publications section to make out two copies of DD Form 1149 for your unit and label the form "Air Force Publications Requirement." But AF Forms listed in the Army index are still ordered on DA Form 17, like always.

Keep it snug

Making too much time in Gigsville 'cause the respirator on your 105-mm howitzer shakes loose—no matter how often it's tightened? Start building Brownie points the easy way. Drop a hint to your support people — tell 'em maybe a new washer, FSN 1015-501-7584, might do the trick. It's made of soft copper and, when tightened, both seals and locks the respirator as snug as a sweater on a pinup queen.

M8A2 Filter units

You combat vehicle crewmen best check your M8A2 filter unit (FSN 4240-691-1505). Especially, if you just got a new unit. **Some** M8A2's in a recent shipment (lot numbers EA 12-214-01-1, -2, -3, -4) got away with faulty valves in their hose couplings. The units aren't to be used even in an emergency, 'cause the valves won't let thru enough air to do you any good.

Your Chemical officer's already put a hold on the M8A2's involved. And they're to be deadlined until he can give 'em new hose assemblies. The replacement hoses each unit'll need are: FSN 4240-300-6464, hose assembly M6 (1 each); FSN 4240-300-6465, hose assembly M7 (2 each).

And they're available thru regular Chemical Corps supply channels.

Would You Stake Your Life on the Condition of Your Equipment?

*PM
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THE
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